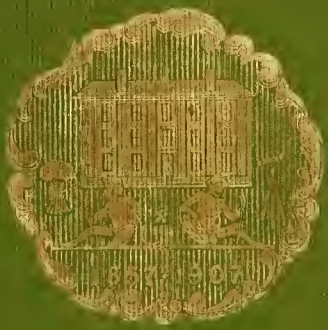
SEMI-CENTENNIAL CELEBRATION

OF MICHIGAN STATE AGRICULTURAL COLLEGE



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SEMI-CENTENNIAL CELEBRATION OF MICHIGAN STATE AGRICULTURAL COLLEGE

THE PRESIDENTS OF MICHIGAN STATE AGRICULTURAL COLLEGE

J. R. Williams, 1857–1859
Edwin Willets, 1885–1889
L. G. Gorton, 1893–1895
T. C. Abbot, 1862–1884
Oscar Clute, 1889–1893
J. L. Snyder, 1896–

Semi-Centennial Celebration

of

Michigan State Agricultural College

MAY TWENTY-SIXTH, TWENTY-NINTH, THIRTIETH
AND THIRTY-FIRST
NINETEEN HUNDRED SEVEN

EDITED BY THOMAS C. BLAISDELL, PH.D.
PUBLISHED BY THE COLLEGE

Composed and Printed By
The University of Chicago Press
Chicago, Illinois, U. S. A

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GENERAL PROGRAM

BACCALAUREATE SERMON

SUNDAY AFTERNOON

MAY TWENTY-SIXTH AT HALF-PAST THREE O'CLOCK

COLLEGE ARMORY

BY

MATTHEW HENRY BUCKHAM, D.D., LL.D.

PRESIDENT OF THE UNIVERSITY OF VERMONT

THE COLLEGE AND THE STATE

WEDNESDAY MORNING

MAY TWENTY-NINTH AT TEN O'CLOCK

ASSEMBLY TENT

PROGRAM

ADDRESS FOR THE STATE

BY HIS EXCELLENCY FRED MALTBY WARNER
Governor of Michigan

ADDRESS FOR THE GRANGE

BY HON. GEORGE B. HORTON
Master

LIGHT CAVALRY OVERTURE (*Suppé*)

BY THE COLLEGE BAND

ADDRESS FOR THE FARMERS' CLUBS

BY HON. LUCIUS WHITNEY WATKINS
President

ADDRESS FOR THE AGRICULTURAL SOCIETY

BY HON. IRA HOWARD BUTTERFIELD
Secretary

ADDRESS FOR THE ENGINEERING SOCIETY

BY MR. FRANK HODGMAN
President

AUF WIEDERSEHEN (*Bailey*)

ADDRESS FOR THE NORMAL SCHOOLS

BY PRESIDENT LEWIS HENRY JONES
Ypsilanti Normal College

ADDRESS FOR THE DENOMINATIONAL COLLEGES

BY DOCTOR AUGUST F. BRUSKE
President of Alma College

ADDRESS FOR THE STATE BOARD OF EDUCATION

BY HON. LUTHER L. WRIGHT
Superintendent of Public Instruction of Michigan

MARCH COMIQUE (*Hall*)

THE BUILDERS OF THE COLLEGE

WEDNESDAY AFTERNOON

MAY TWENTY-NINTH AT TWO O'CLOCK

COLLEGE ARMORY

PROGRAM

CHICAGO TRIBUNE MARCH (*Chambers*)

BY THE COLLEGE BAND

ADDRESS—"THE COLLEGE AND THE STUDENTS, 1857–1860"

BY HON. CHARLES JAY MONROE

President of the State Board of Agriculture

ADDRESS—"MEMBERS OF THE EARLY FACULTY"

BY DOCTOR ALBERT JOHN COOK

Professor of Biology in Pomona College, Claremont, Cal.

ADDRESS—"HOW THEY TAUGHT IN THE EARLY DAYS"

BY DOCTOR CHARLES EDWIN BESSEY

Dean of Industrial College and Professor of Botany, University of Nebraska

CORNET SOLO—SCHUBERT'S "SERENADE"

BY MR. A. J. CLARK

ADDRESS—"THE COLLEGE IN 1870"

BY DOCTOR WILLIAM JAMES BEAL

Professor of Botany in This College Since 1870

ADDRESS—"EARLY MEMBERS OF THE BOARD"

BY HON. CHARLES W. GARFIELD

Member of Board from 1877 to 1899

MENDELSSOHN'S ORATORIO
ELIJAH

WEDNESDAY EVENING

MAY TWENTY-NINTH AT EIGHT O'CLOCK

ASSEMBLY TENT

OPEN SESSION OF THE AMERICAN ASSOCIATION OF AGRICULTURAL COLLEGES AND EXPERIMENT STATIONS

PROFESSOR LIBERTY HYDE BAILEY

DIRECTOR OF THE COLLEGE OF AGRICULTURE OF CORNELL UNIVERSITY

Presiding

THURSDAY MORNING

MAY THIRTIETH AT NINE O'CLOCK

ASSEMBLY TENT

PROGRAM

OVERTURE—"IF I WERE KING" (*Adam*)

BY THE BACH ORCHESTRA

ADDRESS—"DEVELOPMENT OF AGRICULTURAL EDUCATION"

BY DOCTOR ELMER ELLSWORTH BROWN

United States Commissioner of Education

ADDRESS—"DEVELOPMENT OF ENGINEERING EDUCATION"

BY DOCTOR WINTHROP ELLSWORTH STONE

President of Purdue University

LA FERIA FROM "LOS TOROS" (*Lacome*)

ADDRESS—"THE AUTHORITY OF SCIENCE"

BY DIRECTOR WHITMAN H. JORDAN

Of the Geneva (N. Y.) Experiment Station

GRAND MARCH (*Christopher Bach*)

ALUMNI DAY EXERCISES

THURSDAY

MAY THIRTIETH

PROGRAM

11 A. M.

ALUMNI BUSINESS MEETING

College Chapel

12 M.

ALUMNI LUNCHEON

Assembly Tent

2 P. M.

ALUMNI LITERARY EXERCISES

Assembly Tent

(For detailed program see next page.)

5–8 P. M.

CLASS REUNIONS

Various places

ALUMNI LITERARY EXERCISES

THURSDAY AFTERNOON

MAY THIRTIETH AT TWO O'CLOCK

ASSEMBLY TENT

PROGRAM

OVERTURE—"LIGHT CAVALRY" (*Suppé*)

PRESIDENT'S ADDRESS

BY MR. RUSSELL ALLEN CLARK, 1876

ORATION

BY MR. RAY STANNARD BAKER, 1889

"CAVATINA" (*Raff*)

POEM

BY MRS. PEARL KEDZIE PLANT, 1898

HISTORY

BY MR. CHARLES JAY MONROE, 1861

FANTASIA FROM "IL TROVATORE" (*Verdi*)

NECROLOGY

BY HERBERT WINDSOR MUMFORD, 1891

NATIONAL MEMORIAL DAY

THURSDAY AFTERNOON

MAY THIRTIETH AT FOUR O'CLOCK

ASSEMBLY TENT

PROGRAM

Memorial Day Parade

By the College Battalion

On Athletic Field at four o'clock

Musical Program

By the College Band

Memorial Day Exercises

Assembly Tent at the close of the Battalion Parade

Invocation

By Doctor Frank Gibson Ward

Memorial Day Address

By Hon. Washington Gardner

Member of Congress of the Third Michigan District

THURSDAY EVENING

MAY THIRTIETH

Illumination of Campus

At eight o'clock

Parade by the Students with College Songs

The "Oak Chain" Fancy March

By the Young Women of the College in Front of the Women's Building

Bonfires in Front of Wells Hall

Reception to Delegates, Alumni, and Friends of the College

College Armory at nine o'clock

Orchestra Concert

Assembly Tent adjoining College Armory from 9 to 11 P. M.

JUBILEE EXERCISES

FRIDAY MORNING

MAY THIRTY-FIRST AT NINE O'CLOCK

ASSEMBLY TENT

PROGRAM

PROCESSION OF DELEGATES, ALUMNI, FACULTY, AND STUDENTS

INVOCATION

REV. HORACE CADY WILSON
Lansing, Mich.

RECEPTION OF CONGRATULATORY ADDRESSES

FROM OTHER INSTITUTIONS AND LEARNED SOCIETIES

MARCH—"BADGER STATE" (*Christopher Bach*)

POLONAISE FROM "MIGNON" (*Thomas*)

ADDRESS FOR THE DEPARTMENT OF AGRICULTURE

BY HON. JAMES WILSON
Secretary

ADDRESS FOR MICHIGAN AND ITS UNIVERSITY

BY PRESIDENT JAMES BURRILL ANGELL
University of Michigan

"THE NIGHTINGALE AND THRUSH" (*Bosquetto*)

ADDRESS FOR THE EAST

BY PRESIDENT RUFUS WHITTAKER STIMSON
Connecticut Agricultural College

ADDRESS FOR THE SOUTH

BY PRESIDENT HENRY CLAY WHITE
College of Agriculture and Mechanic Arts, University of Georgia

SOLO FOR CORNET WITH ORCHESTRA

ADDRESS FOR THE WEST

BY PRESIDENT BENJAMIN IDE WHEELER
University of California

ADDRESS FOR THE MIDDLE WEST

BY PRESIDENT EDMUND JAMES JANES
University of Illinois

WEDDING MARCH (*Mendelssohn*)

COMMENCEMENT EXERCISES

FRIDAY AFTERNOON

MAY THIRTY-FIRST AT TWO O'CLOCK

COLLEGE CAMPUS

PROGRAM

MARCH INTERNATIONAL (*Lincoln*)

OVERTURE FROM "MARTHA" (*Flotow*)

SINGING OF MENDON

BY THE AUDIENCE

INVOCATION

BY REV. ELISHA MOORE LAKE

ADDRESS

BY THE PRESIDENT OF THE UNITED STATES, THEODORE ROOSEVELT

SINGING OF AMERICA

BY THE AUDIENCE

CONFERRING OF BACCALAUREATE DEGREES

CONFERRING OF HONORARY DEGREES

BY PRESIDENT JONATHAN LEMOYNE SNYDER

OVERTURE FROM "CYRANO" (*Christopher Bach*)

SOCIETY BANQUETS AND REUNIONS

FRIDAY EVENING

MAY THIRTY-FIRST AT SEVEN O'CLOCK

BACCALAUREATE SERMON

BACCALAUREATE SERMON

PRESIDENT MATTHEW HENRY BUCKHAM
University of Vermont

Thus saith the Lord of Hosts, I took thee from the sheepcote, from following the sheep, to be ruler over my people.—II Sam. 7:8.

This is so frequent an occurrence in human experience, the calling of men from the sheepcote to national leadership, that it has become a commonplace of moralists. But it never ceases to be an impressive fact, and may well be studied for the instruction with which it is charged. The callings of divine Providence rest on good reasons which we may well seek to discover. Why are shepherds of sheep so often called to be kings of men?

1. Let us try to get the essential out of that which is incidental in the fact under review. The pastoral calling stands for much in itself. It is human life as first organized—social life in its freshness and simplicity. Idealized in after ages it inspires the poetry of the idyl and the pastoral. When life becomes luxurious and corrupt a Tacitus or a Rousseau recalls the pastoral life to men's imagination, and it becomes the fashion to mimic its simplicity and innocence. But that which is good in the pastoral life takes on a larger good in the more developed agricultural life with its fixed homes, its seed time and harvests, its granaries and fruits. God calls men to leadership also from the furrow, from the harvest field, from the garden and the vineyard. And we cannot stop here. From every humble calling in life men have been advanced to high station—from fishing and tent-making, from type-setting and rail-splitting, from the tanner's vat and the shoemaker's bench, from the sailing craft and the ferry boat, from opening and shutting of a steam valve, from a hundred arts and industries. And was

not the world's supreme leader taken from the bench of the carpenter?

But we should make a great, though common, mistake if we should conclude from these facts that the larger life is a soil in which the masterful virtues cannot grow. This life also has furnished to mankind its share of leaders. The noble families of the nations have had their representatives in the fields where great deeds have been wrought. "Noblesse oblige" has been not only a cry but a power. We look especially to this life for certain qualities essential to the highest manhood, for what we call the chivalrous qualities, courtesy, refinement, a delicate sense of the respect due to others, toleration, frankness, charity. But these are councils of perfection not fundamental principles, flowers rather than roots of character. A man can have them and not be a leader. The prime, essential, indispensable virtues and qualities which make strong and prevailing manhood and womanhood are of another order. What are they? Why do we look for them; why does God himself seem to find them more frequently in some callings than in others; and how can we retain them as life becomes more complex and artificial?

2. We shall very soon in this quest, I think, reach the conclusion that what we call character depends largely on the existence and paramountcy of a few simple primordial virtues which are within the reach of all, not dependent on special gifts or opportunities. They are:

a) The economic virtues, industry, thrift, sobriety, including also an instinctive and persistent horror of waste, waste of substance, of time, of opportunity, of life, of self. A teacher, an employer of men, can usually pick out those who are foreordained to promotion and success. They are those who are toiling upward while their companions loiter and dawdle and sleep. One great advantage which the shepherd lad and the boy from the artisan's family have is that these are virtues of

necessity to them, and having been once acquired are available in other and higher affairs.

b) Next are the domestic virtues—love of kin, fidelity to home and friends and neighbors, the respect of the sexes for each other, and the sanctity of marriage. Not only are these virtues in themselves, but they safeguard all other virtues. One who keeps himself in close touch with father and mother and sister, who feels that everywhere kind eyes and kind hearts are following him, and that to bring gladness to those dear eyes and hearts would be the greatest joy to him, will never go far astray and may even for their sake do things beyond himself.

c) Again, the patriotic virtues. We have seen in this country —and have read the same story over and over again in the history of other countries—how strong a force in the development of character is the principle of patriotism—how it sobers, steadies, and enlarges manhood, and womanhood too—how, when the emergency comes which rouses patriotic feeling, it suddenly, in a single day, changes a boy into a man; a girl into a woman—how it pushes aside with a Dante-like contempt those who can only carp and jeer while others do the fighting and the work, and steps out into the arena of strife ready to dare all and do all for some just and holy cause.

d) And, crowning all, the religious virtues, those which have their source in religion, and especially in what the Scriptures call the fear of God, which does not mean dread of God, terror in the thought of God—and yet is not the same as the love of God which is a high attainment, the outcome of experience and reflection and prayer—but that primary right feeling toward God which is made up of awe and reverence and devoutness—the feeling toward God which men have who get their religion from nature and much personal thought and the spirit of God, rather than from books and human teachings. Other environments are favorable to other types of religion—beautiful types some of them, the ascetic, the contemplative, the mystic—but

the religion which tends to make men staunch, robust in practical affairs, good at need, good in all winds and weather, is the kind which comes through the experiences of shepherds and tent-makers and fishermen.

3. But the youths that have had this training in the pastoral and home-bred virtues, can they keep it in the larger life which opens before them? No doubt the life of freedom and opportunity endangers these virtues. They were never more sympathetically portrayed than in the "Cotter's Saturday Night," and yet Burns went out from such a home to encounter the temptations of luxurious society and to fall before them. The son of the man whom God called from the sheepcote to leadership lost the fundamental virtues of which we have spoken, lost his strenuous manhood and became a voluptuary, lost domestic virtue, lost national pride and loyalty in a lax cosmopolitanism, lost the fear of God, and in consequence descended from the high place he ought to have kept to be a *roué*, a cynic, a trifler, a virtuoso in "ivory and apes and peacocks." Men doubtless moralized on it as men do now, and said, "See what has befallen the son of the man whom God called from the sheepcote to be leader of Israel, and know that wealth and prosperity and power are not good for man; they ensnare and corrupt him, it were better for him to have followed the sheep."

But is this so? Is such moralizing just? Were it not strange that God has made this life full of things of beauty and made us eager to get them—has made us capable of manifold lovely arts and high adornments and enrichments of life, and made these things the rewards of virtue, of earnest striving and patient well-doing, and then has put his curse on them and made them agencies for our corruption and undoing? Shall we bid the shepherd lad remain in his sheepcote, the blacksmith stick to his forge, the poet live on in his cottage, lest in the great world they come to grief?

No—but we will say, "Be the king if you can, but be the shepherd king. Be the United States senator if you can, but keep

the virtues of the blacksmith's home in the senatorial life. When you feel that the society around you is growing artificial and intercourse is insincere and everything sophisticated and unreal, go back and get in touch again with the simpler and more genuine life out of which you came. As the queen used to go to Balmoral and sit by the ingle of her humble cottagers and learn useful lessons of life; as Mr. Lincoln loved to have a chat with one of the plain men from whom he came; as every wise statesman consults with his constituents back in the country homes; as the divine, learned in rabbinical and patristic lore, gets some of his best divinity and his sermons by talking with his sexton or his gardener—so it is good, it is wholesome to the mind and sanitary to the soul for everyone to keep connection with that life, whatever it may be, which is nearest to nature and reality.

Again, we will bid our young aspirants cherish the spirit of youth and cling to the best things gained in youth. Wordsworth wished that his days should be joined each to each in natural piety. It were good for us all that the best of each period of life should pass on to the next. It were good to keep as long as possible the ideality of youth. There is, for instance, the college idealism. One who has had the great privilege of being a member of a college has a tie which binds him to the conception of life for which a college stands. And then there are one's church relations. Most right-minded young persons in these times enter into church relations. They do this in those youthful years when conscience is tender and active, when the heart readily responds to the appeals of divine love, and the will rejoices in acts of holy obedience. It is good to hold fast to this early faith. It is not a sign of superiority to lose it, for it is usually lost by neglect. In these stirring times when the trumpet is ever ringing out the challenge, "Who is on the Lord's side?" it is good to feel that this question is decided, that one is committed, and pledged, and can be counted on in the good enterprises in which the Christian church is leader.

And this brings us to say finally, Let us cultivate a religion which puts due emphasis on the ethical and practical side of human life. I do not plead for an undue emphasis on this side —to the disparagement of the imagination, the emotional, the mystic elements in the religious life—those which make men devout and unworldly and saintly. But, strange as it may sound, these are the easier attainments in religion. It was easier for Solomon to make that sublime prayer at the dedication of the temple than to live a blameless life. It is easier for any of us to be pious than to be honest. But hard as it is to be honest, to be true to that in us and above which is deepest and highest and best, it is easier with religion than without it. To bring heavenly natives down to help us in the discharge of earthly duties is one of the holiest offices of religion. Therefore let the man whose integrity is in danger of being overborne by conventionalities seek aid in a religion which is strongly realistic, which never gets away from the fear of God, which can sing and soar with St. Paul in the Epistle to the Ephesians and the thirteenth chapter of Corinthians but never lets go of the Sermon on the Mount and the Epistle of James, which so requires hard work during six days, that Sunday will be welcomed as a day of real rest, which sympathizes with and blesses men who use tools and ply manual arts, which mellows and sanctifies the cares and troubles, joys and sorrows of family and kindred, friends and neighbors, which calls no human art or relation common which it can fill with its blessing and so make holy. Thus in great cities, amid civilization however splendid, in society however luxurious, ministered to by all the arts, beset by all the corruptions of modern life, young men and maidens may keep themselves as simple, and pure, and true hearted, and strong as in the days of antique virtues, and may add thereto the new powers and facilities for living which the new civilization, essentially a Christian civilization, has put into their hands for the adornment and enrichment of their lives.

Address to the Class

Members of the Graduating Class:

I suppose it would be regarded as a bit of baccalaureate flattery to assume that college graduates are foreordained to be leaders of men. As individuals, of course, they are not all so destined—as a class they are. More and more in our time and country they are coming to be, and are expected to be, leaders in the communities in which they live—some leaders of few, some of many. When a man emerges into public prominence and his biography is given, we expect to be told at what college he was graduated. This implies the acknowledged potency of a liberal education in life. But it implies much more than that. Graduation in a college of high grade selects men and women by their moral more than by their intellectual qualities. Many are called but few are chosen. Many start but few arrive. A hundred enter a class and fifty are graduated. Not that all who fall out by the way fail because they are unworthy to reach the end. That we could not say remembering those who have been with you for a time and whom you miss today. But in general in our American communities the struggle for survival to the end of a college course, the struggle with poverty and hardship and the chances of life, is a moral struggle, and success means the survival of the qualities that make up strong, masterful character. And the same law holds all through life. Success in any high sense is moral superiority—the ascendency of virtue. And the virtue which here prevails is the aggregate of the simple and elementary virtues which all men may have if they will. What I have been trying to do for you today is to glorify in your minds these simple virtues, to help you to see that they make a plain, humble life bright and strong and even noble, and that no other qualities however brilliant can in any life supply the lack of them. You will be quite likely to meet men who are not college men and who will be your superiors—men who will do more for your art or profession, more for invention,

or statesmanship, or philanthropy, or religion. It may be because they will have more genius than you—but more probably because they will have more industry, more resoluteness, a higher purpose.

Revolving very often in my mind during my many years of college experience the question of the relative importance of the moral and the intellectual factors in the product which we call success in life—success of a high order I mean—I have come to the deliberate conclusion that they stand in the ratio of at least three to one, that saying nothing about heaven above and the life hereafter, the worth of a man or a woman here and now is one part intellect and three parts affection, conscience, and will. Has one a brilliant mind? With adequate moral force behind it and within it, it becomes a mighty power; not so consorted and energized it avails little. Are you conscious of having only moderate intellectual gifts? You can triple their momentum by aid from the moral side of your nature if that is true and strong. But some of you may say, "I do not aspire or care to be a leader of men. I am content to slip into an easy place and go through life without ambition or struggle or prominence." It is too late for you to choose that position. It is shut against you. In accepting the great trust of a liberal education, in consenting to receive from society this loan of leisure and seclusion, and the costly appliances of study, you have undertaken a great responsibility which you cannot now throw off. *Noblesse oblige.* You are hereby called of God to service, to influence, to the labor and dignity of leadership. Your college expects this of you. It will be disappointed if you do not, in some sphere, do some effective, helpful, honorable work. Your Alma Mater will rejoice with the great joy at once of self-congratulation and of sympathy when she hears of such good work done by you. Go with her blessing and prayers and come again to receive her felicitations and to join with her in thanksgivings.

THE COLLEGE AND THE STATE

WEDNESDAY MORNING

ADDRESS FOR THE STATE

GOVERNOR FRED MALTBY WARNER

You will pardon me, I am sure, if at the outset I ask your indulgence for a moment while I bid those of you who come from without our borders a most cordial welcome to the Peninsular State and this great institution, and those of you who claim Michigan as your home a no less cordial welcome to a college whose name and fame is known throughout the civilized world.

The exercises of this day and week mark an epoch in the history of this important institution of learning and of the state which made it possible. It is our fondest hope that the close of another half-century may witness an institution and a state that have kept pace with advancing thought, methods, and ideals, and showered as rich blessings upon humanity during those fifty years as have marked the marvelous progress of each during the five decades that have just passed into history. More than this could not be hoped for. Less than this should not for a moment be anticipated.

The welcome which I bid you today, my friends, is not simply an expression of my own pleasure that you have gathered here. I but voice the sentiments of every loyal citizen of this great state when I bid you a most sincere and cordial welcome. Whether you are returning to this institution, your Alma Mater, as those who years after their departure from the home of their childhood return to seek renewed inspiration within its sacred precincts and to live over again the days of long ago, or whether you come with greetings as representatives of other institutions which have a share in the great work of fitting young men and young women to participate intelligently in the great forward

movement which has for its object the uplifting of humanity and the betterment of the world, you are equally welcome to this place and to the ceremonies of this week. I have faith to believe that the experiences of these few days will so enrich you in all the essentials of genuine manhood and womanhood that you will return to your homes, whether they be far or near, better fitted to face the duties and responsibilities of life and better equipped to render valuable service to your fellow-citizens, to your country, and to humanity.

We of Michigan believe that the fathers of our state builded even better than they knew when they incorporated in the constitution of 1650 the requirement that "the legislature encourage the promotion of intellectual, scientific, and agricultural improvements and shall, as soon as practicable, provide for the establishment of an agricultural school for instruction in agriculture and the natural sciences connected therewith."

Following the adoption of this constitution by the people, the legislature, in obedience to this requirement, laid the foundation for this great institution of learning by enacting a law which made provision for a "high seminary of learning in which the graduate of the common school can commence, pursue, and finish a course of study terminating in thorough theoretic and practical instruction in those sciences and arts which bear directly upon agriculture and kindred industrial pursuits."

This broad foundation, established by our farseeing predecessors, has enabled this College to keep pace with advancing thought and take advantage of opportunities as they presented themselves for broadening its courses and thus increasing its usefulness.

Having been the first state in the Union to establish and equip an educational institution for the direct promotion of technical training in agriculture, Michigan was prompt to profit by the enactment by Congress in 1890 of the Morrill law which, through the increased revenue it provided, enabled it to extend

the scope of this institution's usefulness by adding a mechanical department. Subsequently, in response to the demands of the people of the state, the legislature made provision for the establishment of the women's department, now one of the most valuable adjuncts of the College.

You come then today, my friends, to the pioneer agricultural college of the United States, an institution which has blazed the way and set the pace for all similar enterprises that have since been established to aid in the great work of educating the masses of our people, elevating the standard of American citizenship, and developing our great country.

Rising amid the stumps which, in that early day, covered this beautiful campus and standing out from a background of virgin forest which stretched away to the farthermost limits of this now fertile farm, the unpretentious buildings which housed the sixty students who were enrolled at the opening of the College in May, 1857, furnished ample accommodations for all who sought instruction here. Meager as was the number of students who entered the College when its doors were thrown open fifty years ago, it doubtless was as great in proportion to the population of the state as is the greatly increased number of young men and young women who now avail themselves of the opportunities here presented for securing a practical education which will fit them properly to fill the positions in life to which they are called.

The growth of this College has been commensurate with the development of the state. Its equipment has been increased and its courses of study enlarged and expanded to meet new demands and new conditions. Successive legislatures, recognizing the great value to the state of the work done here, have been judiciously generous in providing for the financial needs of the institution.

How well it has repaid the fostering care of the state is a matter of history and common knowledge. Its hundreds of graduates have gone from its portals to take the lead in all industries and all movements for the development of the state and

its resources. They have ever been the leaders in the advances that have been made in agriculture and kindred sciences; they have been at the forefront in the onward march of the mechanic arts; they have been prominent in the professions; they have been foremost in all movements having for their object the improvement of society and the betterment of humanity.

These young men and young women have gone from this institution into all the walks of life and everywhere have taken advanced positions among their fellows. Their great services to the state have more than repaid the people of Michigan the investment they have made here—repaid them many times over in a material way, while in a greater and grander sense the return has been such that cannot be measured by dollars and cents. It has taken the form of increased knowledge, increased happiness, improved conditions of living, better environments, higher ideals, and nobler lives. This great reward is like unto that treasure which is laid up "where moths and rust do not corrupt nor thieves break through and steal."

While Michigan has naturally and properly been the greatest gainer in every way by the work of this grand institution of learning, the great good accomplished has spread far beyond the borders of our state. It has found its way into every state and territory and even into lands beyond the seas. Everywhere the graduates of this institution are in demand to carry forward the work of development and progress. No better or more positive proof of the standing and character of this College could be adduced than is found in the fact that from all states and countries there comes a call to it for aid and its graduates have, from year to year, responded to this call and demonstrated their ability to measure up to all demands and meet all requirements.

And I doubt not that this great institution will go steadily and grandly forward, keeping step with the onward march of humanity, broadening its work, and increasing its usefulness throughout the years that are to come.

ADDRESS FOR THE GRANGE

GEORGE B. HORTON
Master of State Grange

Mr. Chairman, Ladies, and Gentlemen:

As we pass along through life we at times meet with incidents and occasions which in after-years are marked as of such special importance that they stand out conspicuously from all other events, and often we find ourselves recognizing these happenings as fixed times from which the dates and the importance of all other happenings are reckoned.

I believe that this occasion, because of its broad significance, will become a prominent milestone in the lives of all who participate in and attend the exercises incident to this, the fiftieth anniversary of the Michigan Agricultural College. Fifty years is but a short space of time when considered as a part of the ages, but in this case it comprises the whole.

It marks the time of the beginning, and following along it leads up to the present. The most profound thought, however, in connection with this occasion is that while the life and work of the College up to the present make a history rich in achievements along the lines of agricultural and human progress and development and in this work have measured the full lives of many gifted and devoted men, comparatively speaking a commencement only has been made. While we would not shadow the past record of the College and all its valuable and more than expected or before thought possible contributions to the development of our state and its people, we may nevertheless pause and marvel at the great work before it, if the rate of progress and development of the recent past decades are to continue. For this occasion it is enough to congratulate our state

that the fathers who provided for this College, along with others in our educational system, possessed that wisdom and foresight which led to the laying of a foundation so eminently fitting to a state destined to be recognized as a leader in agricultural, industrial, and intellectual development.

It is well for our people to gather and to assist in celebrating important anniversaries of the establishing of prominent state institutions, but it is expected that, without lacking a full appreciation of the value of all others, we give distinctiveness to each separate event.

This College exists most conspicuously for the development of agriculture and, as a fit companion, to give such mechanical and technical training as will permit the head and the hands to work together, and to assist each other in being progressively useful. The term agriculture in its broad sense may include horticulture, floriculture, stock raising, and all things incident to soil production.

It is therefore fitting to consider at this time the importance of agriculture and how it leads out and directly affects all other interests and the welfare of the state itself. From such line of thinking we may also decide for ourselves the relative importance of this College to all other educational institutions of our state.

As the foundation of it all, Michigan is, in the main, an agricultural state. Although there exist within its domain rich deposits of iron, copper, salt, and coal, and there are within its thrifty cities numerous manufacturing and business interests employing many people, yet those engaged in interests akin to agriculture more than equal all others combined. The products of its farms, gardens, and orchards, including live stock, make up an annual aggregate value of more than that of all other interests.

Michigan is also a state of ideal American homes. These are established upon a soil so fertile and exist under such climatic

conditions as to give a range of production surpassed by no state or country. Originally covered with a dense timber growth of a wide range of varieties and of prolific size, it is therefore the home of trees for commercial profit and to add to the adornment of farm and landscape. These same conditions give us a wide variety of fruits of such quality as to add fame to our commonwealth as a fruit-producing state.

All the staple cereals are grown here with profit, and all of the best varieties of pasture and fodder grasses are native and abundant. All these contribute to make possible the ideal home state and to give the occupants thereof a broader range of opportunity and profitable husbandry than can easily be found elsewhere. For a broadly mixed husbandry, or a shifting from one specialty to another, Michigan offers opportunities unsurpassed. So bounteously favored, it perhaps is but naturally resultant that our state is a land of schools and educational privileges of a high standard. Our general system has been commended by representatives of a foreign nation after extensive travel to discover the best system for adoption in their home country. Our rural schools are the basis of it all, for histories and biographies of successful men and women, in all of the laudable ambitions of life, quite generally trace back to the schoolhouse in the country as the place where the foundation part of their education was attained, and in many cases it furnished the total of their school education. In these schools, so near to the homes of the people that the education of the head to think and to deduce conclusions can co-operate with the hands in doing useful things, the essential foundation for usefulness and happiness is laid and the correctness of our plan is proven.

Then after laying this solid foundation, our state has prepared itself still further to educate and to equip, even to what we may term a finishing point, our sons and daughters for the many open avenues to industrial and professional usefulness.

From the standpoint of preparation for educating the youth

of our state, perhaps our normal training schools should be of first consideration, for it is here that those who are to teach, guide, and mold, receive instruction to aid in securing commissions for this all-important service. It is fast being proven that no mistake has been made in providing the larger normals in different sections of our state and the county system to make it possible for more to prepare for the business of teaching. The great demand is for more and better equipped teachers for the common schools of the state.

There comes a time after children and young people have, as a general mass, attended school together, when each must go his or her way in quest of still further education in preparation for some particular line of occupation or profession. For all this our state has wisely provided various opportunities for technical and professional education, through our School of Mining, the Agricultural College, and our great University. Besides these we have denominational colleges and business training schools. Verily, Michigan stands in the front rank for equipment for rearing an intelligent and progressive citizen population.

Albeit, as the crowning glory of it all we must recognize and do homage to our intelligent and progressive citizenship. To inherit, as our people have, a country so rich in opportunities as to draw from ambitious men their best energies, brings about a condition of citizenship which for high ideals and grand achievements cannot well be surpassed.

Here let us pause and ask the relation of the Agricultural College to all this thrift and well-doing. Although the institution was born of wisdom and good intent, it might have failed to get a good start or it might have maintained a mere existence void of progress or of recognized merit.

The opposite from this, however, has been and is true. It has done an incalculable work in the development of an intelligent home life upon the farm. From small and humble begin-

nings, side by side with the pioneer, this institution started in the dense woods. Here through the same processes as were followed by the people of the state whom it was organized to assist, woods were cleared away, stumps were grubbed out, lands were drained, and, step by step, as its usefulness could be proven, it has grown until today it exists a monument to the wise councils and untiring energies of those who have managed its affairs and a great credit to the state. Aye, beyond this, it stands as more than a peer of all like institutions in all the states of our whole country. In all of its beauty, magnitude, and broad influence, is it all that it should be? We answer, No, and it cannot be so long as there exists other of our state educational institutions receiving greater support from the state than does this College.

Not that I would make the University less, but I would make the Agricultural College more. I would make it more nearly representative in point of magnitude, scope of work, and equipment, of the interests it represents or stands for. It would seem but in line of justice and for the real welfare of the state that our higher schools of learning should be placed and maintained upon a basis reasonably comparable with the importance of the interests each may most directly represent.

This comparison should go deep enough to consider not only their relative social, intellectual, and professional importance to the state, but as well the comparative numbers of people engaged in the different interests and the comparative importance of each to the state's welfare. Then we must consider the technical training and the experimental results necessary to enable each class to meet successfully the intricate propositions which are essential to success, and which are of such a nature as to make them impossible of attainment by individual effort. The greatest good to the greatest number of people can be laid down as a safe and sane policy of state, but this must not be interpreted to mean that even the welfare of the few is not essen-

tial to the ideal aggregate development. Ideal development takes into account all of those social, moral, educational, business, and professional attainments, which, when blended together through the influence of each upon the other, go to make up an intelligent, progressive, and strong community, state, or nation. The people of a state, constituting the state itself, should, in providing the ways and means for its greatest good, deal justly by all people and all interests. The time is at hand when the demands are imperative for a broader and more thorough industrial training. When we take into account the fact that the industrial interests, both in point of state welfare and of people engaged therein, so far outclass all other interests and professions combined, the way would seem to be clear to provide for an expansion of this College which is so justly needed and demanded.

Incidentally and by a further reference to our state University, I will hazard the following and for further consideration refer it to the people of the state of Michigan. In the light of the developments of recent years and of the trend of affairs and of the demands educational and material, I insist that the time is here, when we, as citizens who furnish the propelling power for it, may well pause and ask how far shall state pride carry us beyond the requirements of our state in supporting by direct taxation an educational institution chiefly for the professions which are for a very small minority of our people, so as to vie successfully with like institutions in other states, richly endowed by gifts from the princely fortunes of philanthropic men? Time will not permit further comment. The question is asked in all sincerity and a full discussion thereof by the people of our own state will surely lead to a wise and just conclusion.

Mr. Chairman, I am given a place upon this anniversary program, not because of myself, but that I might represent the Grange organization of our state on this occasion. For this recognition we feel grateful.

Education is the rock-bedded foundation of the organization I have the honor to represent.

Organization of the farmers of Michigan is but an outgrowth of their desires to improve and to progress in such measure as the present time demands. Farm families are separated by broad acres, and the various helpful agencies, desirable but not in natural evidence, must be provided and brought near at hand through associated effort. The Grange is broad in conception, conservative, and yet progressive in its work and influence. Through frequent council and exchange of thought it leads the farmers of the state to a position of self-respect and a better understanding of a citizen's privileges and duties.

The Grange has always been an ardent friend of the College, and in fact of all of the educational institutions of our state. Through its efforts and support this College has no doubt been assisted to long steps forward in its efforts to provide for the agriculturalists, the mechanics, the artisans, the home-makers, and home-keepers of Michigan, an opportunity for preparation to meet the many scientific and intricate problems natural and inseparable from the duty they have assumed, to feed, to clothe, and to add to the progress of the world. Because of the timely and essential work in which the College is engaged, and because of its eminently successful administration, I feel safe in promising a continued loyal support from the entire mass of agriculturalists of Michigan.

Hoping for the College many returns of its semi-centennials, and that it may always be alert in keeping up with the demands of the interests and of the people it was organized to assist, in behalf of the Grange Organization I say, Good-will and Godspeed!

ADDRESS FOR THE FARMERS' CLUBS OF MICHIGAN

LUCIUS WHITNEY WATKINS
President of the State Association of Farmers' Clubs

Mr. President, Brother Alumni, and Friends:

It seems particularly appropriate that the two great agricultural organizations of this state should have a part today in the celebration of the Semi-centennial of her College of Agriculture, the sturdy pioneer of its kind in all America.

Michigan has shown a disposition to be very generous with her agricultural interests and with this great school; and the Board of Agriculture and Dr. Snyder are most courteous in the recognition upon this program of the farmers' important part in the industrial and educational progress of our commonwealth.

In the past, as now, the Michigan Agricultural College has added in no small measure to the grand sum of things which go to make every resident within our borders both glad and proud that he lives here in Michigan, instead of somewhere else, and that he lives here now.

I can assure you that to the present speaker it is a very great pleasure indeed to convey, generously and without restraint, to this institution, so dear to him as an alumnus, a message of continued good-will and hearty congratulation from the great democratic organization of farmers' clubs which he has the honor to represent.

It is an exceedingly great pleasure also, and one which affects me more than I can tell, to look into the faces of the dear old boys of my college days, and before, and to see the same faces again, changed only slightly with lines furrowed by work and care; but the same boyish faces still, and remaining M. A. C. boys, always loyal, until the end.

It is interesting to know that so many of these men are members of farmers' clubs; determined to better the conditions of home and farm and the community in which they live. Then those farmers who become active in a political way and are elected to the legislature, organize a farmers' club there; probably because of their daily proximity to bell-cows and lemons, mules, pumpkins, etc. (outside of the legislature, as they pass along the streets of Lansing to and from the capitol). And the members of other clubs than these, even those of the great cities, have as abundant an agricultural fare upon their tables each day as can be found anywhere. So we see that nearly all are directly or indirectly connected with the farmers' club.

It will be seen that our organization has been from the first very closely associated with this institution. Six of the thirteen ex-presidents of the State Association of Farmers' Clubs are graduates of Michigan Agricultural College and of the remaining seven, three are the fathers of M. A. C. men. I think the professor of animal husbandry will tell you that this is a pretty good pedigree.

And, friends, the strongest fraternity, and not secret either, in this College is designed to foster and promote an interest in rural life and the business of agriculture, and is attended by the agricultural students and faculty. I refer to the splendid local chapter of the State Association of Farmers' Clubs.

It is a great college that can turn out a first-class governor from a poor farmer boy in less than a year of its agricultural course! It is an institution that will in every case develop men and women, in the fullest sense of the term, out of all those who have capacity and desire to learn.

The work of the farmers' clubs is most informal: a meeting of kindred spirits to consider the questions which naturally arise from local conditions in the various communities. In them the home is discussed, with its most sacred associations, and the flowers and lawns and trees; the school with its crowds of

little folk; the farm, which is the provider and maintenance of luxury and comfort and the playground of the family and their friends. And for the protection of the welfare and happiness of these homes, which are very little different from the purest type of homes anywhere, those problems affecting the rights and interests of the people of the state at large are considered freely, for just what they are worth and what they stand for in the scale of equity and justice; though it must be admitted that the farmers labor under the very great disadvantage of not having at their ready command a prodigious mass of statistics and compilations, from which convenient deductions may be drawn, and are not favored with the enlightenment of the oratorical efforts of hired attorneys, so learned that they can argue with equal powers of persuasion and equal display of sincerity upon either side their clientage may desire.

And so we hear from certain sources that the country people are immeasurably crude in their logic as compared with others, and that they are disposed to advance startling fads and most dangerous ideas of needed and corrective legislation. Well, possibly! These erratic fads are, however, as a rule, important enough to call forth the attention and ridicule of a majority of the politicians, for two or more years, then to engage them in what appears very like a combination of the games of football and leapfrog for about the same length of time, when they are glad to indorse them as their very own; too valuable and too necessary to public progress to be longer kept from the dear constituents, over whose interests they preside.

My friends, the decision of the common people upon measures for public good, arrived at under the sane and natural conditions of the home, and far removed from the persuasion and tumult of the caucus and convention, are much surer to lead him who champions them in the public service toward the United States Senate than over the much-trodden pathway to the penitentiary.

The meetings of farmers' clubs partake of the spirit of the New England town meetings, and their unselfish verdict rings true and clear to the wishes of the common people. Gathered together in the farmer's own cosy home, under the auspices of the good housewife, who provides a bounteous dinner; with friendly greetings of families, one with another, and in the presence of flowers and little children, with music and laughter, the stern, cruel consideration of business affairs is tempered with love and appreciation of truth and honor and godliness.

We join with all persons and institutions, whether of the higher or the industrial education, in an effort to make more pleasant and remunerative and more worth living not the lives of the few but of the great masses of our people.

Allow me then, humbly and in the spirit of sincerity which prompts the good-will of thirty thousand brother farmers, to convey in their behalf my hearty greeting to old M. A. C. today, and to bid her Godspeed in her career of endeavor for great public good.

ADDRESS FOR THE AGRICULTURAL SOCIETY OF MICHIGAN

IRA HOWARD BUTTERFIELD
Secretary

It gives me great pleasure to represent the Michigan State Agricultural Society in extending congratulations to the Michigan State Agricultural College on this occasion.

I have heard men express the wish that they might have been born years later in order that they might live in times of greater progress than has yet been witnessed, but I am satisfied to have lived during a time when the state and its institutions were building, and am glad that I have known some of the men who laid the foundations and those who began the superstructure and have thus far builded.

It has been said that the men who founded the institutions of this country builded better than they knew. I would say that they did not build, but that they did lay foundations on which they expected their successors should build most elegant structures.

Consult, if you please, the plans made by John D. Pierce for the public-school system of the state, and say if it has been necessary to widen the foundations one whit, that they might support one of the best public-school systems in the country. Is not the same true of the University and of our system of charitable and reform institutions?

Read the utterances of the men who were prominent in founding this College, the first agricultural college established in the United States, and tell me, Gentlemen of the Board and of the Faculty, if they did not lay out work enough not only

for the fifty years behind you, but in a great measure for fifty years to come.

And this is no reflection on the men who succeeded them. They, too, have done their work well, all of them to this day, with an unselfish devotion to the interests of this institution.

The Michigan State Agricultural Society was organized in 1849, just eight years previous to the opening of this College. At that time Michigan was the twentieth state in population and the fifteenth in wealth by the assessors' books. Today she is the ninth in population and the fifth in wealth. Detroit was in 1850 the twenty-third city; now she is the tenth in population.

In 1849 agriculture exceeded in value all other industries in this state. The vast mineral wealth of the state, its silver, iron, coal, salt, and cement had not been developed; its vast wealth of timber was not known as a source of revenue but rather as a hindrance to agriculture. Hence the interest of public men, as well as of farmers, in agriculture. We remember the first president of the State Agricultural Society as the governor of the state and the members of its Board of Managers were men most prominent in public affairs.

It has been well for agriculture and for this College that it has always had for its friends those whose private interests were largely in other professions and pursuits than agriculture. They have been better and more courageous friends at times than the farmers themselves.

I recall how, in the earlier years of this College when the struggle was on to decide whether the College should be a separate institution or become part of the University, John C. Holmes, for many years secretary of the State Agricultural Society, never a farmer but always interested in agriculture, stood in the breach, almost alone, and prevented its absorption by the University.

The Agricultural Society was organized for the same purpose

as the College. The object as stated in the first constitution was "to promote the improvement of agriculture and its kindred arts throughout the State of Michigan." It made it the duty of its Board of Managers "to annually regulate and award premiums on such articles, productions, and improvements as they may deem best calculated to promote the agricultural, household, and manufacturing interest of the state, having special reference to the most economical or profitable mode of competition in raising the crop or stock or in the fabrication of the article offered." It was directed "to publish a report embracing such statements of experiments, cultivation, and improvements, proceedings, correspondence, statistics, and other matters, the publication of which will exhibit the condition of the agricultural interests of Michigan, and a diffused knowledge of which will in the judgment of the Board add to the productiveness of agricultural and household labor, and therefore promote the general prosperity of the state."

Was not this a grand work for a society of mutual organization to take up, with no possible hope for pecuniary reward, and thus to continue for now fifty-eight years? Shall we not call these men patriots?

While the State Agricultural Society may be called an elder brother (or sister) to this College, it is to a great extent its parent.

Hon. E. H. Lothrop, in a public address at the first fair, September 26, 1849, sounded the first note for an agricultural school.

Here is his plea for agriculture in the common schools, a pleading we have been more than fifty years in answering:

> As four-fifths of the children of our state are intended for, and probably will pursue agriculture as a profession, and as a means of livelihood, then I say, make our common schools what they should be, and let the branches there taught have a direct reference and bearing upon the future business of our children. Make our common schools the nursery of farmers.

Have we not been repeating these words in later years and fancied we were proposing something new? Again Mr. Lothrop said:

> While our governments, both national and state, are truly liberal and pour out their money like water in the establishment of literary and other public institutions, and dot our land over with theological seminaries, with law seminaries, with medical seminaries, and with military seminaries, poor agriculture, whose hand sows the seed, and whose arm gathers the harvest on which all our earthly comforts and even our very existence depend, as yet has no seminary in which to teach her sons the most valuable of all arts.

Mr. Lothrop also outlined a Women's Department as follows:

> As I have impressed strongly on those gentlemen who have sons, the importance of educating them thoroughly in the business in which they are destined to follow, let me say a word to you who have daughters: In addition to a daily and thorough training in the care and labor of the dairy and all household affairs, educate them in everything that will have a tendency to make them plain, modest, sensible, and useful women and fit companions for those of our sons who shall become scientific and practical farmers. Teach them that industry is honorable and adds to their charms, and that the domestic circle is to be the theater of their future fame and glory.

Forty-seven years later this College established a course for women, a course which proposes to give the training that Mr. Lothrop named as essential for women.

The members of the Constitutional Convention of 1850 evidently had heard something of this movement for agricultural education and embodied in that constitution the provision that the legislature should as soon as practicable establish a school of agriculture. But legislatures do not always adopt new measures "as soon as practicable." They often need the prodding of the people behind them to urge them along. But the people who organized the Agricultural Society had in mind an institution which should develop work which the society could only begin or barely suggest.

Hence at the annual meeting of the society held December 19, 1849, in the village of Jackson, Mr. Bela Hubbard offered the following resolution:

Resolved, that our legislature be requested to pass such legislation as shall appear necessary or expedient for the establishment of a central agricultural office, with which shall be connected a museum of agricultural products and implements, and an agricultural library, and, as soon as practicable, an Agricultural College, and a model farm.

A memorial to the legislature of 1850 was adopted, from which I quote:

Having established successfully a State Agricultural Society, with its annual fairs, it is hoped that, with its central office, museum, and library, a great step has been accomplished toward perfecting our agricultural system. The next most important step in this process is the founding of a State Agricultural College and Model Farm.

The memorial is quite long, and outlined the work that might be done, and the need therefor.

Hon. Jos. R. Williams, who later became first president of this College, in an address before the society at its second fair at Ann Arbor in 1850, started the call for an experiment station. Speaking of the publication of addresses, he said, "One short exposé of study, of John's experiments, or Molly's industry, may prove more instructive than a whole oration. On this account it should be our duty to preserve the history and progress of each experiment in bringing a product or animal to perfection"—a broad suggestion for an experiment station.

On April 2, 1850, a joint resolution was passed by the legislature asking our senators and representatives in Congress to use all honorable means to procure from the United States a donation of three hundred and fifty thousand acres of land to this state for the purpose of establishing and maintaining agricultural schools therein.

Who can doubt the distinguished senator from Vermont had heard of this resolution before he introduced his "land grant

bill"? However, if Michigan made the suggestion, we honor Senator Morrill for carrying it to a successful result.

In 1852 both the Normal School and the University announced to the society that each had arranged for a course of lectures on agriculture and were ready to carry out the wishes of the society relative to an agricultural school, which should be a department of these institutions.

In January, 1853, the society sent a committee of its members to visit these institutions and learn their facilities for teaching agriculture. They came back and reported hearing some fine lectures, but, said the committee, "we do not think the information to be derived from these sources is sufficient to constitute the education of a professional and practical farmer," and recommended the purchase of a farm "where practical and scientific education shall be taught, and that it be not connected with any other educational institutions."

The society kept resolving to the legislature until in 1855, by an act approved February 12, the president and executive committee of the Michigan State Agricultural Society were authorized to select a location and site of not less than five hundred acres, within ten miles of Lansing, for a state agricultural school, and in June of that year they came over and selected this spot.

Do you think the men who gave such earnest work toward the establishment of an agricultural school would not stand by it in after-years? They supported the College in its formative period, when it needed friends, with the same zeal and energy used in promoting its organization, and for years held its summer meetings at the College.

In many cases the same men have served at the same time on the Board of Agriculture and on the Executive Committee of the Society.

The Agricultural Society appreciates the friendship and cooperation of the College. No shade of jealousy has ever crept

in and nothing but a desire for mutual co-operation in helping to raise the agriculture of the state to its highest condition exists between these two organizations.

Mr. President of the College and members of the State Board of Agriculture, I am authorized and directed on behalf of the Michigan State Agricultural Society to extend its best wishes for further growth and success.

May the next half-century be more prosperous for the College than the one just passed, and may your efforts be so directed and your work so ordered during these coming years that the people of the state may justly claim this to be not only the oldest but the "best agricultural college in the country."

ADDRESS FOR THE MICHIGAN ENGINEERING SOCIETY

FRANK HODGMAN
President

What is the Michigan Engineering Society, and what has it to do with the Michigan Agricultural College, or the College with it, that I, as its representative, should be called on to speak for it at this great celebration?

It is an incorporated society composed of men who have graduated from colleges and universities and then spent the rest of their lives studying in that greatest of all finishing schools, the school of experience. It is a purely educational society, and for the twenty-seven years of its existence has been a powerful educational force, not only in our own state, but all over the country, and reaching out into foreign countries. Through its influence laws have been made and unmade. Through its literature courts have been guided in making their decisions in cases which came within its special lines. It began as a society of surveyors. For a time its principal discussions were of topics connected with land surveying. Now they have broadened out until they include topics in every field of civil engineering. Its papers and discussions are published in an annual volume now called the *Michigan Engineer*. Last year 2,800 copies were published and went to engineers from the Atlantic to the Pacific coasts, and from Canada to South America. By its system of exchanges, each member of the society gets annually from twelve to sixteen similar publications from other engineering societies. These publications are filled with papers and discussions, up to date, and of the best type, by men who are known masters of the subjects of which they treat. As I have

said, we began as a society of surveyors. Numerous problems were discussed of which there were no solutions in the textbooks on surveying. Most of them were questions of law and not of mathematics or of the use of instruments. The very first thing the society did was to appoint a committee whose duty was to prepare a *Manual* which should give authoritative answers to all these questions. The committee spent all their spare time for six years preparing and getting out the book. They studied up every decision of the Supreme Court of the United States and every decision of the courts of the several states bearing on the location of boundary lines. The outcome of the labors of the committee was *A Manual of Land Surveying*, which came out in 1886 and is now in its fourteenth edition. It is the standard authority in the United States land department and all over the United States on the subjects of which it treats. Since its first issue a number of textbooks on surveying have been written and published, but there is not one of the whole lot which has not taken some portion of its matter from this book. More than one supreme court decision in recent years has been made in language taken from it, and many another court has found in its pages the authorities on which to base a decision. About the time the book was published, the supreme court of Michigan gave its decision in the boundary case of *Wilson* vs. *Hoffman*, in which it was stated that the court followed the decision of the Supreme Court of the United States in the case of *Brown's lessees* vs. *Clements*. The Michigan decision was criticized in the society and it was shown that the *Brown's lessees* vs. *Clements* decision had been reversed years ago by the same court which made it, in another suit over the very same boundary line, as not being good law nor in accordance with the settled practice of the land department in the sale of the public lands. When this criticism reached the Michigan judges, they promptly, of their own motion, recalled the *Wilson* vs. *Hoffman* case and reversed their own decision.

The active members of the committee who prepared that *Manual of Land Surveying* and who from the knowledge gained in its preparation were enabled to criticize our supreme court with such results were M. A. C. men.

The production of this *Manual* practically settled all the knotty questions with which the land surveyors had to deal. From that time on, the papers and discussions in the society took in a wider range of subjects covering nearly the whole scope of civil and mechanical engineering practice. Members who had been only land surveyors began to develop into engineers. The annual conventions brought them in contact with some of the brightest and best men of the profession from whom they learned directly, while from the publications which they received from the society they got a mass of up-to-date engineering literature which was an education of itself.

The character of the subjects discussed in the society has changed from time to time, but at all times the leading papers and discussions have been on live topics in which both the profession and the people were interested at the time. At one time sanitary engineering had the lead; at another, road-making was at the front; at other times mechanical topics have led; but whatever the subjects discussed, the prime object and underlying motive has not been individual advancement but the public welfare; to learn how to give the public better service, better roads, better health, better everything with which the surveyor or engineer has to do. What had M. A. C. to do with all this? Professor R. C. Carpenter of M. A. C. was one of the two projectors and promoters of the society. Whether the conception originated with him or Mr. J. E. Sherman I am not certain, but they two brought about the organization of the society. After the organization Professor Carpenter was its secretary and treasurer for six years and was then elected its president. Following him as secretary was another alumnus of M. A. C., who up to that time had been a district vice-presi-

dent and who filled the office of secretary-treasurer for twenty consecutive years, leaving it to become president. Of the sixteen men who have held the office of president, four have been M. A. C. men. Of the membership at large there has always been a liberal number who came to us from M. A. C.

The society has a warm feeling of friendship for all the schools which are fitting men to become members of the profession. We have a special pride in the two great schools of our own state, the University of Michigan and the Michigan Agricultural College, which are engaged in that work. Those of us who laid the foundations of our professional education right here are more than proud of our Alma Mater, of what she has done and what she is now doing for the education of what we deem one of the finest types of manhood—honest, true, and able engineers.

ADDRESS FOR THE NORMAL SCHOOLS

PRESIDENT LEWIS HENRY JONES
Ypsilanti State Normal College

I have the honor to bring greetings from the oldest institution for the training of teachers west of the Alleghenies to the oldest institution in the West which devotes itself to technical training in agriculture and the mechanic arts. Our fervent wish is that prosperity attend you in all your ways to the end that the commonwealth may continue to receive at your hands well-trained citizens, with that happy balance of culture and efficiency which you so well represent in your courses of study and your teaching practice. We have recently had coined three catching phrases descriptive of tendencies more or less evident in American life, and more or less represented in our educational institutions. The celebrated French preacher, Charles Wagner, coined and placed in circulation the phrase, "the simple life," thereby eulogizing that happy poise of mind resulting from a kind of culture which finds its interests mainly within—or at least within the domain of—the spiritual life. Our honored President of these United States has invented and exemplified the phrase, "the strenuous life," laying emphasis at least upon the outward struggle in which power delights itself in contending with problems which tax its utmost strength. Hon. Frank A. Vanderlip, vice-president of the New York City Bank, in an address before the National Education Association, at Asbury Park, used the phrase, "the efficient life," as expressing a modern idea of the union of knowledge and effort by directing these in practical ways toward the accomplishing of ends directly increasing the comfort and happiness of the people.

Each of these phrases is in a way a happy putting of a half-

truth about life; but of the three the last is by all odds the best. It requires all the poise of the first and the enthusiasm of the second, but it harmonizes them so that the former may not rust itself away in inglorious ease, nor the latter waste itself in tempestuous riot. This is what it seems to me this institution typifies and stands for. Your classrooms and laboratories stand for intelligence, knowledge, and culture; your broad acres and your varied industries stand for practical use of those ideas gained in classroom and laboratory. There is no place here for intellectual conceptions or abstract philosophies dissociated from throbbing and pulsating life. Nor is there any mere place here for purposeless wear and tear of nerve and muscle in undirected labor—no place for mere strenuosity undirected to desirable ends—rather, the happy combination of culture and effort which seeks first to find out nature's laws and then to adapt them to the accomplishment of beneficent ends under direction of quickened brain and cultured mind.

But as a state institution this College stands as one of the great forces which the commonwealth of Michigan maintains for the purpose of sustaining its own life and defending itself against unproductive people. In the end the agricultural college must justify itself on this ground—it must produce efficient citizens, who shall be worth to the state all the state pays for their education, with enough margin left to make it expedient to organize and carry out the elaborate plans everywhere in evidence about us.

Undesirable citizenship may assume Protean forms and hide itself under many disguises. But broadly considered we may cluster the undesirable attributes under two great heads—*criminality* and *incompetence*. The former includes the positively bad, and the latter the good, so long as they are good for nothing. There is a widespread conception among a large class of people that the ordinary forms of public education are too abstract and formal in their character, and that in their

present forms they do not tend toward morality and efficiency. It is true that in many instances public education is entirely too formal, being devoted more to books than to things, to general than to special matters, and to abstract truth rather than to practical affairs. Nevertheless, even in its present form, the whole tendency of public education is distinctly moral and tends directly toward competency. I may be allowed to illustrate two cases briefly. Some time during the 90's my attention was called to a report made by the superintendent of the Detroit House of Correction in which the statement was made that 75 per cent. of the inmates of that institution could read and write. One of the Detroit papers commented editorially upon this fact, implying that because 75 per cent. of the criminals confined in the Detroit House of Correction were educated in the limited sense of being able to read and write, and only 25 per cent. of the criminals confined there were totally illiterate, therefore public education, such as these people had, increased their tendency toward criminality in the ratio of 75 to 25. I had occasion to answer this accusation before a meeting of the National Education Association. I called attention to the fallacy in the editorial by showing that, according to the report of the state superintendent of public instruction for that same year, 96 per cent. of the population of Michigan could read and write—that is, were educated to that extent, some of them doubtless beyond that point; and that 4 per cent. only of the population of Michigan was at that time totally illiterate. It resulted, therefore, in the fact that the 25 per cent. of the persons confined in the Detroit House of Correction, representing as it did the entire state, came from this 4 per cent. of the population; while the 75 per cent. of the criminals came from that large proportion of the population who could read and write, namely, the 96 per cent. Reducing to a common denominator, therefore, it was discovered that the 4 per cent. of the population of Michigan which was at that time totally illiterate

produced seven and one-half times its proper ratio of criminals. This has been shown to be substantially the fact time and again in the study of statistics over wide areas—that even that small degree of education which is indicated by the power to read and write has its distinctly moral effect upon those who receive it.

The same point which I wish to illustrate with respect to efficiency was discovered in 1837 by Horace Mann, then secretary of the State Board of Education of Massachusetts. He examined the pay-rolls of the factory workers in the manufacturing districts of Massachusetts, especially the mills at Lowell and Lawrence. He discovered, by making the test suggested by the ability on the part of the worker to write the name to the pay-roll instead of being compelled by total illiteracy to make a mark, that those who were able through slight education to write their names received one-third more pay than did that contingent of those persons who were obliged to place their mark upon the pay-roll instead of writing their names. In the ability to write one's name there was evidence of a one-third increase in competency.

But here stands an institution that is dedicated to the making of education distinctly moral and efficient, in that it tends to develop that capability which comes from the power to do things well. This is distinctively a moral force, since it develops self-respect in the individual and brings out the spirit of *noblesse oblige* upon his part. But beyond this, the tendency of this institution is to make people distinctly intelligent and capable of doing certain work efficiently because of the investigations which they have made in classrooms, laboratories, and fields belonging to this institution. Many times over does this institution return to the state the amount expended for it in the increased morality and efficiency of the citizenship of this commonwealth, and because of this it deserves the constant support and good-will of the people of this state.

ADDRESS FOR THE DENOMINATIONAL COLLEGES

PRESIDENT AUGUST F. BRUSKE
Alma College

Mr. President, Ladies, and Gentlemen:

I am here as the representative of a church school to offer heartiest felicitations to a state school. I am glad of the privilege of rendering this service, both because of our agreements and because of our differences. We are agreed in that we are seeking the highest culture of the young people placed under our care. This is the rock foundation of every school in the world. This is the sacred unity of all education. In the name of this unity of culture I greet you today.

But we are equally happy in our differences. The peculiar purpose of your culture is indicated in the name you bear. You are an "agricultural college." Your outlook is upon the farm. The fragrance of the grain fields is yours; the sweetness of the clover fields is yours; and the "cattle upon a thousand hills" are yours. This does not mean that all of your graduates will become farmers; but that all the graduates choosing that vocation will be intelligent and scientific farmers. Not every law student becomes an attorney; not every medical student becomes a physician; and not every student of Alma College becomes a preacher. Our constant endeavor is so to train him that whether he becomes a preacher, teacher, or merchant, he shall be a cultivated Christian gentleman, true to the church, true to that "kingdom which is an everlasting kingdom and that dominion that endureth through all generations." Your outlook is upon the farm, our outlook is upon the church. Therefore there can be no strife between us. Our congratulations this day are as sincere as they are hearty. We

rejoice with you in what you have achieved, in what you are achieving, and in what you are destined to achieve.

This vast multitude gathered here, these beautiful grounds and buildings, these many hundreds of students, these distinguished alumni from every part of our country, all bear abundant witness to the splendid work of fifty years. Of this much will be said in these jubilee days. Let me rather therefore say a word concerning the present and the future of your noble work.

Certain orators are fond of telling us that we are living in the days of agricultural renaissance. Not so. It is not a rebirth that we are witnessing, but rather a new birth. We are living in the six days of the Creation of Scientific Agriculture. Science for the first time is moving onto the farm. That hopeless picture of "The Man with a Hoe" may be true of the past. It is not true of the life of today, thanks to the agricultural colleges of the world. They have changed the hopeless, brainless "man with a hoe" into a Robert Clark Kedzie, father of the beet-sugar industry of Michigan—into a Luther Burbank, creator of a new world of flowers and plants and trees.

They tell us, Sir, that the trend toward life in the city cannot be arrested; that in 1800 less than 4 per cent. of our population dwelt in cities, and that in 1900, 33 per cent. were to be found there. They tell us that the application of machinery to agriculture has driven multitudes from the farm. In 1870 there was one man engaged in farming to every seventeen acres of cultivated land, in 1890 there was one to every twenty-six acres. This machinery has driven four and one-half millions of farmers together with their families from the soil to the city. And this is bound to continue. If so it only means that the farmer of the future will be a brain worker rather than a hand worker. It means that the agricultural college will be a greater necessity to the future than it has been to the past. That future, radiant with the promise of abundant usefulness, beckons to you. In the possibilities of that future let all men rejoice!

INDUSTRIAL EDUCATION AND THE STATE

[*Summary*]

LUTHER L. WRIGHT
Superintendent of Public Instruction

I admire and reverence this beneficent institution because it has always been democratic, has always kept close to the people, and has never forgotten its purpose. I congratulate the state on having at its head a man who has the ability to make it what it is.

The public school is the creator and preserver of democracy. In it every individual takes his rightful place. It levels among children all distinctions of wealth. It humbles pride of birth. Native, rugged strength is the leader in that democracy. There is no fear for democracy from the hordes and swarms of foreigners who have come and are daily coming into this country like a cloud of locusts. The public school will make Americans of their children in language, ideals, thought, and customs. This Americanizing process cannot be stayed or thwarted so long as the public school can have these children.

The common school is a hopper into which are poured all kinds of grain, German, Irish, Polish, Scandinavian, Italian, and Hungarian, but it all comes out flour whose grade is essentially American. The elephant feeds on the trees of his native jungle, but what he absorbs becomes elephant and not tree. So whatever America absorbs from Europe, if it can but go through the American public school, becomes American and not European.

Industrial education is the problem for this state, and you who make public sentiment will solve it. Speed the day when manual training, domestic science, and agriculture shall be

taught in every school in Michigan. I hope to live long enough to see public trade schools established in the centers where the state shall aid, not only in the education of the culture side, but in that practical education that will train boys and girls to earn a living and to do work with their hands.

Training in agriculture, in the scientific knowledge of the art of farming, will add more to the wealth of the state than will all its copper and iron mines. Manual training and the trade school will add infinitely to the skill of craftsmen and the products of our factories. Domestic science will give us better homes, better health, more comfort, and lasting happiness.

This practical industrial training will amplify and round out the purely mind-studies and will make for the complete man. This, to my mind, should be the great purpose of the states.

THE BUILDERS OF THE COLLEGE

WEDNESDAY AFTERNOON

THE COLLEGE AND THE STUDENTS, 1857–1860

CHARLES JAY MONROE

The College, when I first saw it May 10, 1857, consisted of a tract of mainly timber land, without an acre fully cleared. A few acres had been slashed down and the logs and brush cleared. On every hand were old stubs and partially burned trees. The fire had scorched the timber next to the clearing, so that at every point of the compass to which you turned, you beheld dead and blackened trees which presented a most desolate scene. There are a few pictures in the library which give a faint idea of it.

College Hall, a dormitory, and a small brick barn constituted the buildings. The old dormitory, known for many years as "Saints' Rest," stood a little east of the present site of Williams Hall, and was burned in 1876. These buildings were surrounded by logs and stumps, the carpenters' and masons' leavings, and other rubbish. The roads to the buildings were lined with stumps which had been dug or pulled out and in some cases partially burned.

The road from the College to lower Lansing was fairly good, judged by the road standard of those days. Lansing consisted of three parts, Upper, Middle, and Lower, and the distances and partition woods between them were sufficient to make them distinct towns.

The travel to the College was mainly from Middle Lansing, via Michigan Avenue. This street was usually a mud hole from the hotels to the College, particularly in the spring and fall, and was lined with timber except now and then a small opening made by new settlers. In this connection I wish to call attention to the large stone beside the road with a fair-sized tree seemingly

growing through it. As I remember it, the crack was then small and only partly across the stone, and the tree was about the size of a finger. It was the frequent resting-place on the trips to and from Lansing. I suspect that the growth of the tree is largely due to the mud scraped from the shoes of the wayfarers, which furnished soil and water and created a sort of common ownership in the many contributors. I doubt if any boy in subsequent years passes the stone and tree without thinking of college days.

Lansing had no railroads. The nearest were the Detroit and Milwaukee at St. Johns, and the Michigan Central at Jackson. Most of the boys came by these routes. From Jackson to Eaton Rapids there was a plank road, but it had so many broken or missing planks that for a good deal of the way the square edges of the plank made it worse than the round logs of a corduroy. From Eaton Rapids to Lansing it was mainly mud holes. We regarded ourselves as fortunate if we got our trunks through, even by carrying a pole or rail for considerable distances to pry the old stage out of mud holes.

Personally, I did not know as to the road from St. Johns. I only recall that when there was a comparison between those from the north and from the south, one would conclude that both were among the worst in the state. It is fair to state that the vacations in those days were in the spring and fall, and so at the seasons of the year when the roads were at their worst.

The dedication exercises were held May 13, 1857, in the college room usually known as the chapel. This room has been the general meeting-place for all sorts of gatherings for fifty years. At the dedication it was crowded to its limit, and many stood about the doors, both inside and out. With two others I stood in the south center window, the platform being on the north, or opposite, side.

The next day those wishing to enter the College met in this same room as requested by the president. They were required,

as I remember, to register their names, ages, residence, and occupation, and state the occupation they expected to follow after leaving college. Then the rooms were designated where they could go for examination. Fortunately for many of us, the questions were easy. The next day we again assembled, and all who had passed were assigned rooms. There were four students to each room, to do their own chamber work. Within a day or two we were again called to the chapel by the president. He stated that for the present he wished to assign the work as far as possible to those familiar with the work designated. A show of hands was asked, for those accustomed to driving horses. Probably four-fifths responded. After a few questions, the teamsters were chosen. Next, those familiar with oxen, a less number, responded. I was named to drive one yoke. The call was continued until nearly all the different sorts of work were mentioned and someone of those lifting the hand would be designated.

The first work, in which nearly all took part, was cleaning up the carpenters', painters', masons', and plumbers' rubbish, and clearing away the logs and brush near the buildings. As I remember it there was not an acre fully cleared on the farm—that is, with stumps out as well as logs and brush removed. Later there were many changes made in the assignments. As for myself, I continued to drive the oxen through the summer of 1857, mainly on the stump machine. In the summer of 1858 I drove the same team as a logging team, and *they were extra.*

Visitors coming to the logging field who were familiar with that sort of work were sure to notice and admire the team. Those remembering back to the days when clearing and logging were a prominent part of the work in Michigan will realize that a good logging team was highly valued, and their ability to make a log snap was often praised.

I recall an incident which occurred at a near neighbor's. A Mr. Seaver had an extra yoke of oxen of which he was very

proud. As I was passing the field with several friends where he was logging, one of the party expressed the wish to drive out and see the men roll up a log heap. I introduced my friends and stated they would like to see a heap made; I also remarked that I was sure they would like to see his oxen draw the logs. He hitched to a long one and waved to everybody to keep away from the switch end, then sprang toward the oxen with raised whip, calling out, "Haw, Buck." This brought the oxen toward him and he, dancing back to keep out of their way, stammered out, "I beg your pardon, I beg your pardon, Buck, I meant, Gee."

In the winter of 1857 and 1858 chopping was the principal work. Over a hundred acres on the south side of the river was slashed into windrows and burned the following summer. We worked in three divisions, two and one-half hours each—first, 7 to 9:30; second, 9:30 to 12; third, 1:30 to 4. The second was expected to be out in time to take the tools of the first, the rule being that the same boys should follow each other in the use of the same ax.

An incident occurred the latter part of the winter which furnished considerable amusement and was made the subject of a very entertaining essay read before the Lyceum. As division No. 2 was leaving the dressing-room (where clothes were changed or overalls put on over the ordinary suit) word was received that a bee tree had been found and that the boys of No. 1 division were having a treat of honey. The boys of No. 2 abandoned the usual custom of marching in Indian style of single file and struck a double quick for the scene of feasting. The bridge was a large fallen tree reaching from bank to bank. Ordinarily it was adequate, but on this occasion when the whole squad were having a neck-and-neck race and all were wanting to cross at the same time, it resulted in several taking a forced bath before the coveted feast. Arriving at the scene, a pitched battle occurred which discounted a college rush. Besides, the bright sun warmed up the bees, and they with

natural patriotism sought in a very stinging manner to defend their home and honey. They inflicted a good many wounds which soon became prominent and remained so for several days. Like all great battles the sad scenes came afterward. While none were killed and only a few wounded as above stated, the after effects of the hearty feast of honey *mixed with rotten wood* proved very disastrous in its relaxing effects, and sent most of the participants to the hospital. Few wanted any dinner and a less number went to the afternoon classes.

The principal work of 1858 was clearing the land, especially that cut over the previous winter. Some corn, oats, potatoes, and garden truck were raised and the old apple orchard was set out. The most notable and impressive event of the season was the fever and ague. The plowing and stirring of a hundred acres or more of new land with all its decaying vegetation turned loose an immense amount of miasma. The remark often made, "that it was thick enough to cut with a case knife," had much truth in it. In the latter part of August and fore part of September there were 70 out of 100 students unable to attend classes, at least they could come only every other day, as the fever was mainly intermittent. That is, one day the patient felt as well as ever, and the next, never felt worse. The main consolation the sufferer got was the frequent assurance that it was only the ague and nobody ever died from it. Classes were greatly interrupted and in some cases suspended for a short time. Many of the students became very impatient at the interruption of classes; some not familiar with fever and ague declared that it was unnecessary, that the boys were just as well as ever part of the time and might get their lessons and not be holding others back. I had a roommate who was of this way of thinking and unwittingly expressed it too freely. As my boyhood home was on the windward side of a mill pond I knew personally of its debilitating effects and still more of it from frequent observations of others, and reminded him it was a more weakening and

serious disease than he could appreciate without actual experience. A little later it got hold of him. He was a sturdy, pushing New Englander and fought it off bravely, keeping up his work and study. One morning about 10 o'clock I came in from work and found him behind the stove doing his best to keep his knees from shaking, his chair from rattling, and his teeth from chattering. He put up his hand imploringly and said, "Don't say a word; if I ever get over this I'll never say another thing about anybody, as this is the meanest disease I ever saw."

The principal work of the winter of 1858–1859 was chopping, only instead of slashing it down we cut a large amount into four-foot wood, which was drawn to a long shed just east of the old boarding-hall. This furnished us rainy-day work or entertainment, fiddling it up with a bucksaw.

About a dozen of us remained through the spring vacation doing chores, cutting wood, etc., and four of us were able to recall in the Lincoln campaign that we had been rail splitters. A pleasant event of this vacation was our invitation to and attendance at the marriage of our Professor Tracy to Miss Sessions, professor of mathematics of the Michigan Female Seminary, of which I shall speak later.

The summer of 1859 the College can fairly reckon as its first year in which the production of farm crops and garden truck was the principal work of the students. All of the ordinary farm crops were raised and the quality and quantity compared favorably with those of the best farms in this vicinity. The garden in variety, quality, and quantity was by far the best up to this date and added greatly to the pleasure, comfort, and economy of living at the College.

The late Professor Prentiss of Cornell, who was a classmate, had the superintendence of the garden and directed the work in the afternoon, and it was my pleasure to assist him by having charge in the forenoon.

As the work of the four previous terms had been mainly such as I had been accustomed to in the childhood home—it being heavy timber and the clearings commenced about the time I was born—I got little that was new or helpful, except as the continued doing of any task makes one more expert in it. But the work, experience, and observation which I had in the two summer terms of 1859, which included the gathering, labeling, and arranging of seeds, I have felt were of great advantage to me, for which I have always been grateful.

I have previously mentioned the "Fem Sem," a short name for the Michigan Female Seminary, at Lansing in charge of the Rogers Sisters. There was some visiting of the girls at their college during the summer of 1858, possibly started and encouraged by the fact that Professor Tracy, in whose charge the overseeing of the boys principally was, was in the habit of visiting one of its teachers, to whom he was subsequently married, as stated above. The mutual interest and visiting between the two colleges were greatly increased in October, 1858, when the M. A. C. boys were invited to a husking bee at the "Fem Sem." A field of several acres of corn, as I remember, stood just east of the buildings, now used for the School for the Blind. The night was lighted by one of those brilliant harvest moons and also by the smiling faces of the "Fem Sem" students who acted as partners in the husking. The number of red ears found was quite remarkable, in fact so many and so well scattered over the field were they, that they occasioned a good deal of querying, some declaring that the planter must have had foreknowledge as to the future huskers. When the corn was all husked and picked up, and the stalks bound and set up, we were treated to a bountiful lunch and then to a jolly social time, not soon to be forgotten. We were allowed to linger into the small hours, probably on account of the good work done.

In passing, I cannot help remarking that this was more than a pleasant event to the boys and girls for an evening; it was an

important event for the colleges and especially to M. A. C., situated as it was three and a half miles from Lansing in a sparsely settled neighborhood. There were no seniors, juniors, or sophomores to introduce the new comers. For a year and a half about one hundred boys were deprived, except at the short vacations, of the companionship of mother, sister, or friends. The visits of the boys to the "Fem Sem" and of the girls to the College were of great benefit. I feel sure that memory serves me right in recalling the improvement in personal appearance, the greater attention to dress and address, the more frequent care of rooms and of the college premises, and an elevation of the moral tone. It was the assuming of a normal condition in the mingling of the boys and girls, with mutual advantage to both.

There was always plenty to do for busy heads and hands in study, reading, farm work, the care of rooms, and the mending and care of our clothes. Our sports were mainly of the country sort, "one-" and "two-old-cat" ball games, running, hop-step-and-jump, "pom-pom pull-away," tag, and leapfrog. Some of them were not very dignified; still there were no smashed noses, cracked heads, maimed limbs, nor any killing.

The principal event of general interest, and of special interest to those taking part, was a public exhibition at the close of the term, November 16, 1859. Nine students took part, besides a quartet which sang. The exercises were similar to those of the better class of district schools, and consisted of original orations and essays, interspersed with music. The old chapel was crowded to its fullest capacity, the larger portion of the audience coming out from Lansing.

The College was a typical Michigan pioneer in starting in the woods, in opening up roads, in logging and burning green timber, much of it in the wet season of the year, in the pulling of green stumps, and in ditching where an ax was as important as the spade or shovel. It was hard work for the boys and

expensive for the College. I recall one large oak stump with a large tap root and a mass of others needed to sustain the tall sturdy tree, cut from it. It was only a few feet from the front door of the boarding-hall. Digging away the dirt and cutting off the roots required about ten days' work. Then it took the stump machine to roll it out and two yoke of oxen and four span of horses a half-day to draw it to the river bank near the president's house, costing about $20.

I have also a distinct recollection of some of the ditches. One between College and Abbot was in places one and two feet deeper than the height of the boys. The dripping from the dirt thrown out and the spatter of the water from the chopping of the roots made the boys look as though they had taken a mud bath.

The administration was frequently criticized for this extensive work, but the legislature which fixed the limit of the location of the College and those who selected the site should share the responsibility.

I have imperfectly and hurriedly mentioned a few of the happenings of the six college terms ending November, 1859, and can now simply add that about two hundred acres had been cleared, four residences, a barn, and a small toolhouse had been erected, the lots well fenced and in condition to produce good crops, and a creditable garden and a greenhouse were well started. Better than all this, I believe the boys generally had reached that point where they appreciated that the work helped pay their way, gain health and vigor, and assist rather than hinder their studies.

I mentioned the dearth of female society during most of the terms until partially supplied by the girls of the "Fem Sem." I would not have it understood nor leave it to be inferred that the wives of the officers were not thoughtful and ready with kindly assistance; but they lived in Lansing until the latter part of the period covered and so could do little. I am sure

those at the College, when the steward and all his help left and the boys for a considerable time did the housework, recall how Mrs. Williams came daily to the College and gave generously of her time to assist us. Nor did we forget the many acts of kindness rendered by Mrs. Shearer who naturally left with her husband. For her motherly care and numerous helpful services in previous terms she will ever be held in grateful remembrance.

MEMBERS OF THE EARLY FACULTY

ALBERT JOHN COOK, 1862

Brothers and Sisters, Alumni and Alumnae, and Friends All:

I come with you to bring my tribute of respect, admiration, and love for our cherished Mother, under peculiar difficulties. When the summons came to leave duty and join in the glad festivities, I thought it would be quite impossible. But when the invitation came to speak for the men who planted this institution, men who seemed inspired in thought and purpose, so well did they build; men who worked with a Titan's energy; how could I say "No," though obstacles, high as Olympus, pushed themselves between me and this beloved place? Besides, no other one living knew all the men who wrought so admirably to lay the foundations of this splendid institution, who though they must grope in unknown fields, yet varied not from the course to the stars.

The late James A. Garfield spoke wisely in his memorable eulogy of President Mark Hopkins. Yet forsooth, unless the log were very short, there were better no log at all. Not even a log held the early professors of this College away from those first fortunate students. Indeed, it was the glory of the old Michigan Agricultural College that teacher and student were in closest touch. We old boys were ever welcome to closest intimacy with Williams, Abbot, Tracy, Thurber, and Miles, and we shall never fully appreciate the value of the inspiration that came to us from such helpful and wholesome association. A college is just what its teaching force—its faculty—gives out of energy, scholarship, and character. Were there ever teachers of more sterling stuff, more keenly alive to duty, than was that fine galaxy of men who so eagerly opened to us the pages of

science, art, and literature? Scholarship is what most gilds a college. No college ranks high, unless scholarship is its watchword, ever kept at the forefront. What an example of scholarship we had in the pedagogical founders of this institution! No wonder that with such examples of scholarship as that of Williams and Abbot and their colleagues, the students were stimulated to keenest mental effort!

But the greatest glory of any college are such examples of noble living that the students will most live, and so "will think most, feel the noblest, and act the best." Who that were here in those early days, and were touched by the impress of Dr. Abbot's sweet, true, loving spirit, can ever think of that life and influence, without being ennobled, even though so many years separate us from those glad hours? This College was well planned from its very inception; but what would planning avail, had we not had devotion to scholarship, purity of life, and keenness of conscience?

We have all realized how discouragingly short those golden years of study were! Have you not marveled that so many of our men took positions side by side with men whose opportunities had been of much broader range, and yet that our men were often in the lead? Two things the great college must needs do: it must teach its students how to grasp truth—to acquire knowledge rapidly; it must also inspire in its students a genuine love for study, which shall be an unquenchable passion. When it has done this, it may send its students forth, and they are potentially equipped. I believe this College has been peculiarly happy, through its scholarly men, in achieving these results.

Nor were our professors without able support. Bright, eager, responsive students did much to give impetus to mental "dig" in those days, when educational history was in process of making. Such men as Prentiss and Dickey and Clute and Preston and hosts more like them were as stimulating to our strenuous teachers as were the teachers inspiring to the pupils.

Yes indeed, our professors had splendid timber to fashion, and less wonder is it that their strokes were heavy and true.

PRESIDENT JOSEPH R. WILLIAMS

This College was peculiarly happy in its first president. He was a man of fine physique, pleasing presence, keen, active intellect, and possessed of a ready humor, that made him the ever-welcome companion of the student. He was also a man of broad, tolerant views, and were he alive today, he would keenly appreciate the proposition of a "square deal." The peculiar ideas which dominated in the early history of the College, whose wisdom was affirmed by results, originated largely with President Williams. When we remember that this was the pioneer agricultural college and that he was emphatically a pioneer, blazing a path in an entirely unexplored realm, it is a marvel that he fashioned so wisely and well. Moreover, he had no experts, as we have now, to whom he might turn for aid, in guiding this new enterprise to a successful issue. His masterful mind was well illustrated in his selection of the men to assist him in the new experiment. Mrs. Williams was a real colaborer, and the home of the first president was a bright spot for many a student who enjoyed its ever-open hospitality, in those days when agricultural college was parsed in the singular number.

PROFESSOR CALVIN TRACY

Among the first of the professors whose pleasure it was to throw light into dark places, was our tall, eager, enthusiastic professor of mathematics, Professor Calvin Tracy. He had written books that had won high praise. His health was poor, as indigestion was his constant companion. He told me more than once that he did not know what it was to feel well, and yet how ready and cheerful he was to help us over hard places! He was not only a close student but he was so transparently

true that his character rooted in the hearts and lives of his young companions, so that as they went forth, they had a firm grip on the best things of life. Such genuinely Christian character as guided the life of Professor Tracy never fails or ceases to influence every life that it touches, to higher thought and endeavor. It was jocosely remarked that "Professor Tracy loved the truly good boys and the 'digs;'" with his frail health and love for good scholarship, one can easily imagine him possessed of such prejudice. Can anyone who participated in those memorable geometry contests ever forget the ecstatic pride of our teacher, as the rapid, accurate work was reeled off as by a whirlwind? No one can know of Professor Tracy's life and thorough, earnest work, and not ascribe to him a large place in giving to the College its trend and temper.

PROFESSOR LOUIS R. FISK

Professor L. R. Fisk was one of that first faculty. He was a tall man with pleasing manner, and was ever gracious to all who came to him for consultation and advice. After the resignation of President Williams, Professor Fisk was acting president, until President Abbot was called to the presidency of the College. Professor Fisk was not so scholarly nor so thorough and accurate a teacher as were some of his colleagues, yet he was devoted to the interests of the College, and did much in those early first days to aid in placing the College on a permanent foundation and to create a loyal student body.

PRESIDENT THEOPHILUS C. ABBOT

Dr. T. C. Abbot was not at the College at its opening, in 1857, but he came soon and remained, honored and loved by all, until he was called to a higher realm of glory and usefulness. No one ever connected with this College did more to inspire sound scholarship, to exalt manhood, to develop in the students the very best of endeavor and accomplishment, than our revered

Professor Abbot. "His life was gentle, and the elements were so mixed in him, that nature might stand forth and say to all the world, This was a man!" Why did President Abbot have the entire confidence and reverence of the student body to a greater degree than I have known in any other, in all my college experience? He was a great student, and never appeared before his classes except when he was master of the subject he was to present. His deep, strong, but quiet enthusiasm, tempered by modesty and simplicity, inspired his students, and I often heard them say: "I would rather flunk in all my other classes than in President Abbot's." There was no shadow of pretense in his mental make-up, and he was a bold student who would ever venture to palm off anything that was not genuine in President Abbot's lecture-room. How fondly he touched his precious books! To see his reverent handling of books made us all love books the more. How free his great library was to all of us! How doubly careful were we that no spot or stain should mar those sacred volumes while in our care and keeping! Busy as was his life, whoever remembers the time when he would not eagerly take an hour if he could lift any of us over our troubles and difficulties? His quick, unselfish love for us all left no room for question, and the dullest, most heedless student among us knew that Dr. Abbot was his certain friend. Thus he proved to us "what is the greatest thing in the world."

How Tennyson, and Milton, and greatest of all, Shakespeare, took on new life as he opened their treasures to our dazed appreciation. *Lycidas* became a gem which we have always treasured, since he revealed its rare polish. *Macbeth*, *Hamlet*, *King Lear*, and the *Merchant of Venice* were all transformed as he brought out the rare beauties and the deeper philosophies of those great dramas. Rhetoric and logic and English literature took hard study; yet as he flooded these themes with light, they became fascinating to us, and we wished the recitation hour longer and the time for study not so short. To have known President Abbot

as a teacher, and to have enjoyed his masterful lectures, presented with a splendid diction and rare finish, explain the fact that highest ideals in culture and life were at the very first a treasured part of the equipment of this institution. The cause of agricultural education owes a great debt to this College, and to no one man more than to Dr. Abbot.

As can truly be said of President Abbot, so we can say with equal truth of Mrs. Abbot, "None knew her but to love her, none named her but to praise." She was the true wife, cultured, bright, scintillating; she made their home the dearest place on the campus. It was a very Mecca to us students, and ever held its hospitable arms wide open to give glad welcome to us and our friends. How far I am from being alone in my feeling that I owe an immeasurable debt of gratitude to President and Mrs. Abbot!

He was the ideal college president, great enough to consult with and listen to his faculty and ever to keep the respect and confidence of his board. Such a president always commands a loyal student support, and his influence will ever be in the ascendency. Until disease laid its heavy hand upon him, Dr. Abbot was a tremendous power in the College, and better, a power that always made for righteousness.

DR. MANLY MILES

Dr. M. Miles, though not in the faculty at the opening of the College, came very soon, and for twenty years was a colossal force in molding its character and steering its course. Dr. Miles was a born scientist, a hard student, a close, accurate observer, and he loved to unearth truth as he loved nothing else. He made the truths of physiology and zoölogy fairly glow with interest. It was pleasure to give hardest effort to master his subjects. We knew that he burned the midnight oil, and the perfection of his work won the respect which every good teacher must command from his pupils. Laziness and good teaching are

never bed-fellows. It is not too much to say that there was not a lazy hair in the capillary envelope of our beloved professor of agriculture. When he commenced to teach us entomology, there were no suitable textbooks, but what cared he? Like Agassiz, whom he so much admired, he taught us to study the things of nature and not what others had said of them. His enthusiasm kindled a quick flame in the minds of his students; and how he loved to dig out the hidden truths of agriculture; and what a superb course he built up in that branch! Next to Dr. Abbot, and I am sure that Dr. Miles would wish me to make this exception, were he with us today, he did more than any other of that early staff, to direct this College rightly. It was a sorry day for this institution, when the governor demanded his resignation. If "dirt is matter out of place," then a short word describes that governor. What Agassiz was to natural science development and teaching in this country, so was Dr. Miles to the development of agriculture and agricultural instruction. Dr. Miles's versatility was surprising. He had rare genius in all lines of mechanical invention, and his readiness of resource added to his power over his students. This College, and agricultural education as well, must never forget how much that is best in their fabric came from the hard work and rare genius of Dr. Manly Miles.

DR. GEORGE THURBER

Dr. Thurber was very much like Dr. Miles in many ways. He was here but two or three years, and yet his hard work and marked ability in the science which he loved so well, and his vivacious enthusiasm made him a great favorite among all the students. The exceeding pleasure that came to me in the multitudinous walks with Dr. Thurber, and the love of natural science that came as he opened the great book of Nature in his marvelous fashion, awaked in me a loving appreciation that has deepened with the years. Dr. Thurber's government work

had given him rich opportunity to solve Nature's problems, and he improved them to the utmost. The students thought of Dr. Thurber as a walking encyclopaedia, and indeed he deserved the title. He was quick with advice and information upon almost every subject; and his perpetual fund of wholesome humor made him the center of attraction in every social gathering. His telling service in the horticultural department, and his exceptional ability to make science clear and fascinating, constituted seed of the right kind, when agricultural education was first taking root. Except for his one lamentable failing, what a power for good he might have become, in this first agricultural college! I have often wished that he might have had in boyhood and youth such influence and companionship as would have come with association with one like Dr. Abbot. How different might have been his life, and how he might have enriched the science department of this College through his rare ability and genius!

PROFESSOR ALBERT N. PRENTISS

Professor A. N. Prentiss was one of the first two alumni called to the faculty of this institution. My intimate association with him, and friendship for four years of college life, and my equally pleasant relation with him as a fellow-teacher, make it difficult to speak dispassionately regarding his character and work. Of all my college associates, next to Dr. Abbot, he did most for me. He was clean, true, able, industrious, and of that gracious make-up, that would never barter character for aught that life or man could offer. In the seven years that he taught here, he builded up the department of botany and horticulture in marvelous fashion. How little he had to help him, and yet how the students loved him and his work! His dignity of bearing and purity of life were a constant inspiration to the entire student body. Cornell took a gem from us, when she captured Professor Prentiss. This College has made mistakes; I think the first

was when she permitted Cornell to swoop down and rob us of the invaluable services of Professor A. N. Prentiss.

PRESIDENT EDWIN WILLETS

Many of you knew Edwin Willets as well as did I; but I am sure that none of you loved him more. He was a man of broad outlook. He had a great heart and every student knew that President Willets was a friend that could be counted on. We all had reason for sadness, when it was announced that President Willets had been called higher, and had accepted. With President Willets came a change in the management of the College. I think it was a sad mistake, not to say a disastrous one. Before this, changes in internal management were suggested and all new appointments to the faculty were nominated by the president, but only after fullest conference with and approval of the faculty. The board only confirmed. No college board ought ever to do more. With President Willets came a lamentable change; I feel sure without his desire. Additions to the faculty and startling changes in the internal management were made, with no consultation at all with the faculty, and at times, I think, without the knowledge of the president. I know not if this plan still prevails, but if it does, the College is laboring under a serious handicap, and one that the alumni should undertake at once to remove.

PRESIDENT OSCAR CLUTE

President Clute was the other of the first two alumni that served on the faculty. He was also a loved classmate. He was scholarly in his habits, and clean and true in his life. I need not speak to you of his quick response to duty's call. I must, however, give a page or two from the last chapter of his life. He lived near me, and I saw him often. He suffered great pain, and led a lonely life. At the last, he was in a great room at the Soldier's Home, and so knew no privacy or retirement. To one

of his peculiarly sensitive nature, this must have been a severe trial. Yet he made no murmur, and never was he more loved and respected by those closest to him than in those last sad days when pain and solitude laid such heavy hands upon him. He exemplifies in the last hours how real Christian character may glorify life, even in the "dark valley of the shadow of death."

PROFESSOR C. L. INGERSOLL

We were proud of Professor Ingersoll. His work here was excellent. Subsequently, as a professor in a prominent university, and as president of one of our prominent agricultural colleges, he added new laurels to his fame. With us, he made his lectures so virile that though his students must work hard, yet they loved and respected their teacher, and were full of regrets, when another institution, that placed a higher value on his services, took him away. I have spoken of two mistakes made by this College, in bygone years; one was emphasized when such men as Ingersoll, Garfield, Davenport, Durand, and Bailey were suffered to leave us. Think what prestige has come to Champaign, from the admirable work of Davenport! And what glory limited not by country's shores has come to Cornell, from the splendid work of Bailey! All of this prestige should have come to their own Alma Mater, and would, had the value and the rarity of great teachers been appreciated. The faculty makes the college. Two things are of such incomparable importance, that they must be insisted upon: the greatest pains must be taken in securing new men, and the valuable knowledge of the faculty must be utilized to the utmost in making selections. We must have high scholarship, aptness to teach, and most important of all, men of transcendent character. The other point is just as important: when the right man is secured, hold to him with a relentless grip. Such a course will push any college into the ascendency.

E. M. PRESTON AND S. M. MILLARD

I cannot forbear to give meed of loving appreciation of two of our alumni. Preston and Millard were samples of scores of the old-time boys: clean and spotless in their lives, possessed of a manly chivalry that was sweet and wholesome here, and that changed not as they stepped forth from college halls—men who set a pace, in that nothing was permitted to crowd between them and lessons thoroughly learned. The example of both was ever shouting, "Dig," in the ears of all of us students. Is it any wonder that both became marked men in the states they honored by citizenship? Millard was for years the president of the regents of the University of Illinois, and Preston has his name perpetuated in one of the excellent institutions of California.

As we come back to the dear old College, we are happy and proud to note the great growth and advancement that she has made; we delight in the splendid men that have gone forth to true manly lives. And may we not drop tears in grateful memory of the men, who from the first gave of the best in their lives, that this College might be an example of highest excellence and that the alumni might honor their teachers, and their Alma Mater, by doing nobly their part in the world's work?

HOW THEY TAUGHT IN THE EARLY DAYS

CHARLES EDWIN BESSEY, 1869

Picture these grounds as they were forty years ago, with one college building (now, I think, called Williams Hall, but in those days merely "the College Building"), one small dormitory, four dwellings for professors, a barn, a toolhouse, and a shed for sheep; the grounds mostly ungraded, the surrounding fields undrained and still retaining many of the giant stumps left when the recent forest was cut away. About the College Building was a little spot of graded bluegrass lawn, with a few gravel walks bordered with flower-beds and shrubbery. Here had been retained some of the broad, spreading oaks of the primeval forest to give dignity to the landscape. North and south and east and west, the nearby forests still loomed, cool and shadowy, filled with wild shrubs and countless wild flowers. And through the grounds ran the Red Cedar River, with its overhanging trees, its single wooden bridge, and many inviting swimming-pools. It is a quiet, rural picture which comes back in memory as I think of the College of the days when I knew it best.

The faculty as I first knew it consisted of six men: Abbot, our beloved president; Kedzie, the strong and sometimes stern chemist; Miles, the philosophical naturalist; Prentiss, the polished disciplinarian; Clute, the thoughtful student; and Fairchild, the mild-mannered scholar, now all resting in their graves; added to a year or two later by Cook, the genial teacher, who is still living. There was one assistant, Daniels, a quiet, helpful man who assisted Dr. Kedzie in the laboratory work in chemistry. These men gave all of the instruction then offered in the single college course of study. The College Building contained thirteen rooms, namely: the Chapel, and the Chemical

Laboratory on the first floor; two recitation rooms, and four office rooms on the second floor; and the Library, Museum, and three recitation rooms (two quite small) on the third floor. The Chapel and Museum were sometimes used for recitations, so that there were seven rooms available for class purposes—not a bad showing for the little college of about a hundred students, when it is remembered that there were at most not more than four recitations each hour, and only six professors in all to hold recitations. In fact, but four rooms in addition to the Chapel were ordinarily used for classes. The chemical classes always met in the Chapel, since it was possible to bring apparatus to it very easily from the laboratory on the same floor. The classes in botany met in a small room at the southeast corner of the third floor. The other rooms were common, and were used by classes in any subjects. All of the regular classrooms were supplied with blackboards and plain wooden chairs, and these constituted the "appliances" of that day. In most cases the professors had neither tables, desks, nor cupboards. Each professor quite literally occupied a chair, and nothing further.

It was emphatically the period of the textbook. Some of the professors gave lectures, but in every subject the student always had his textbook as the basis of his study, and daily recitations were the rule. We learned things from books, and were asked to repeat them orally at greater or less length to our teachers. We were not asked to write out what we knew, but were required to stand up and tell it under the keen eye of the professor, and the brutally critical attention of the class. In this way we learned to think on our feet, and I have always felt that much has been lost by the general abandonment of the old-time recitation, and the substitution of the written quiz and examination.

Chemistry, even at that early day, was taught by practical work in the laboratory. We had one lecture or recitation a day, and in addition two hours daily of laboratory work. In the

lecture the professor accompanied his presentation of the subject by carefully planned demonstration experiments, greatly to our edification, and occasionally to our amusement. In the laboratory we plunged at once into the qualitative analysis of unknown substances. We learned to handle chemicals and apparatus by the very simple plan of actually handling them ourselves. Of course we broke apparatus, and blew up things rather often, but finally we learned to be careful, and no one was killed or seriously hurt in the process.

In marked contrast to chemistry, was the presentation of physics which was wholly a textbook study. We used Olmstead's *Natural Philosophy*, reciting and demonstrating (on the blackboard) from its pages, but neither making experiments ourselves nor seeing any made by the professor.

Surveying was made a living subject for us by the addition to a stiff textbook of a considerable amount of field-work, with compass, transit, and level, and the accurate plotting of results.

Our geology was still a textbook subject only. There was no thought of the use of specimens of rocks or fossils by the class, nor was there any required field-work in connection with the subject. Yet there were in the Museum on the third floor many such specimens. The idea of their use by the students had not yet taken hold of teachers in American colleges. The Museum contained specimens to be *looked at* through the glass doors of the cases by the public and occasionally by the students, but such specimens were for preservation, not for handling.

In zoölogy we used a textbook, but its required use was small, indeed. The professor (Dr. Miles) loved to talk to us, and he led us in his talks far deeper into the subject than did any textbook of that period. Thus while we got less of detail, we were given broader views and larger generalizations than would have been possible by the textbook method. We always had before us the skeleton of a cow or some other creature, and to it the lecturer recurred for illustration times without number,

no doubt greatly to our benefit. Still the fact that we made no use of the mounted animals in the museum shows that the idea of illustrating the subject by specimens had not yet been adopted in zoölogy, to say nothing of the laboratory idea, of which apparently no one had yet thought.

Even the subject of entomology was mainly a textbook study. We memorized so many pages and repeated them as nearly as possible verbatim. Here we looked at specimens brought to the class. There was also some desultory collecting of specimens, and now and then a student was seen frantically pawing the air with a "bug-net," in his efforts to capture some beetle, bug, or butterfly. But we were under no supervision as to any field-work we might undertake. A few of us were fortunate enough to be employed in arranging and labeling the college collections under the supervision of the professor, and here we learned much about insects, their appearance, classification, and the practical work of making a scientific collection. It was laboratory work, but none of us recognized it, nor did we ever use the word "laboratory" in connection with it.

In my own science of botany the work was then mainly confined to daily recitations from a textbook, accompanied later by dissections and "analyses" of plants in the classroom, under the direction of the professor. We had a few simple dissecting microscopes which we used in these exercises. Here was no doubt the germ of the laboratory idea as applied to botany. But the purpose was not so much to find out the structure of the plant as to find its name. When that was accomplished we stopped further study of the plant. The name was the important thing and when it was found there was nothing more to be done, unless perhaps to check it off on the margin of the manual. In pursuance of this phase of botany we were required to do a good deal of field-work. We wandered over the fields, through the woods and swamps, often for long distances, in search of plants whose names we found out and duly recorded. Yet

our work was neither supervised nor corrected, nor were our lists of species submitted as a part of our work. We were not required to make herbarium specimens, although encouraged to do so, and some of us did make herbaria on our own account.

There was at that day a considerable collection of plants known as the "Cooley Herbarium" that had come into the possession of the College, and fortunately for me, it was in need of being mounted and labeled, and it fell to me to do it. This work which occupied my time for many weeks gave me most valuable experience in a department of the subject that was not taken up in the classroom.

The College then owned an immense Ross compound microscope, which we used to see standing in a case in a corner of the botanical classroom. It was never taken out for use in class, but always stood there as a challenge to us. I do not know what anyone else did, but at last I could stand it no longer, and getting permission from Professor Prentiss, who gave me the key to the case, I locked myself in the classroom, and taking out the ponderous instrument, looked it over, studied its complex machinery, and made myself familiar with its structure and use. This was my first use of the compound microscope, and this was all the practice I had with the instrument while in the College. It was not much, but it was a beginning, and it enabled me to handle the next instrument which came into my hands when a teacher myself, and to this extent made my own work more successful.

It was a primitive college, and the teaching of the sciences was primitive. We may smile now at the kind of instruction we received at the hands of the professors of that day, but it must not be forgotten that science teaching was rather new in all colleges at that time. Sciences were not well taught in any of them. In many they were not taught at all. And it is the glory of our Alma Mater that she encouraged the study of these sciences. Forty years ago this was the only college in the West

in which one could study all of the great sciences in any manner, or after any fashion at all. And it is greatly to her credit that, with the possible exception of Harvard University, this College then gave the most extended and thorough course in botany in this country.

It was a pioneer in science teaching, and its primitive methods were due to the fact that nowhere were better methods known or practiced. Elsewhere they were generally still more primitive. The College stood then as now for the study of things, as shown especially in its teaching of agriculture, horticulture, and stock breeding. In so far as possible even then the thing rather than the book was studied. The College was instinctively, though unconsciously, moving toward the modern laboratory method. It led the way toward illustration and the direct study of things themselves, and gave a strong impulse in aid of the incoming of the laboratory idea.

That the professors of that day builded better than they knew is no doubt true, but we cannot on that account withhold from them our praise for their good work, nor our gratitude for what they did for us. No alumnus of this College need be ashamed of the kind of work done in the early days, but rather should he be proud that his Alma Mater, though so young among the colleges of that time, was among the first to adopt modern methods of teaching and study.

THE COLLEGE IN 1870

WILLIAM JAMES BEAL

Early in May, 1870, I made my first visit to this College, then 13 years old, to teach botany during the summer. As a contributor to the *Prairie Farmer* I came with keen interest and wrote out my first impressions. Lansing was a town of 6,000 to 7,000, in the midst of which was the old capitol constructed of wood. There was but one railroad passing through the city from Jackson to Saginaw, and that was of primitive style. I secured a ride to the College with a farmer, and on the way soon learned that many farmers within twenty miles placed a low estimate on the value of the "state farm," as it was often called at that time. The course extended over clay knolls and corduroy, the poles of which were to keep the wagon wheels from getting deep into the mire. I saw how it was that President Abbot rarely rode in a buggy that was not well plastered over with clay. We were welcomed to the campus by driving through a patent self-opening gate—often out of order.

It is unnecessary for me to give a detailed description of the campus. Large numbers of the trees of the oak opening were dotted over the ground, most of which had been heavily cut back from the top with the thought that it would improve their appearance. This work had been done by C. E. Hollister, then a student and later a member of the first class to graduate in 1861.

At the right of the main gateway, then nearly due north from College Hall, were four small brick dwellings for the president and three professors. The bricks for these and the two halls were manufactured on the college campus, west of the present armory. Here[1] is old College Hall, Williams Hall just com-

[1] While reading this paragraph Dr. Beal pointed to various locations on a large map of the campus as it was in 1870.—EDITOR.

COLLEGE HALL
Built 1857. The original college building

pleted, the old Boarding Hall later dubbed "Saints' Rest," for reasons which I never fully appreciated. Here the old brick horse-barn, there the farmhouse, herdman's house, the old barn for grain and cattle, a greenhouse of primitive form, and the barn for use of the horticultural department. There is the town line between Lansing and Meridian. What is that zig-zag line along the road? Do you not recognize a drawing of a rail fence which has nearly gone out of fashion? Names of the faculty here, and there the list of buildings, and up there the number of students in different classes; and on this chart are the names of the studies pursued.

COURSE OF INSTRUCTION IN 1870

FRESHMAN CLASS

First term	*Second term*
Algebra	Trigonometry
Geometry	Surveying
History	Practical Agriculture
Bookkeeping	Geology

SOPHOMORE YEAR

English Literature	Entomology
Botany	Analytical Chemistry
Elementary Chemistry	Botany
	Horticulture

JUNIOR YEAR

Physics	Physics
Agricultural Chemistry	Meteorology
Inductive Logic	Rhetoric
	Animal Physiology

SENIOR YEAR

Zoölogy	Landscape Gardening
Practical Agriculture	Civil Engineering
Mental Philosophy	Moral Philosophy
Astronomy	Political Economy
French	French

In 1870 the income of the College was less than $40,000, the year closing with a deficit of $6,000.

The College was young, poor, and small. No member of the faculty had a chair to himself, but occupied a whole settee. For example, the professor of botany also taught history, some English, algebra, and civil engineering. The students took breakfast a little after six, and got out of chapel by seven, where the president called the roll. Classes extended over a period of four hours, all closing at time for dinner. In the afternoon for three hours all students were engaged in manual labor. While the classes were small and much rough work to be done, such as ditching and chopping wood, it was possible to enforce the law regarding manual labor, but as the College became older, the students more numerous, and foremen insufficient, the management of student labor was very burdensome and was perplexing in the extreme. Student labor was paid for at a maximum of seven and one-half cents an hour, and very little of it was instructive.

The regular system of hours for all exercises was recognized by horses as well as by students. For example, the department of horticulture worked an old black stage horse called "Old Prof.," which always started for the shed as soon as the afternoon bell rang. He was very orderly, soon learning to back the cart into a certain place under the shed.

The rough lane in place of the present one extended south across the river ending in a tamarack swamp known as "Number 12," and all beyond was in forest. No railroads crossed the farm in those days.

Fifty-nine students had graduated, of whom three had died. The ten women students selected such studies as suited them from the only course offered at the College, viz., the course in agriculture. Even at that day, President Abbot urged that some special provisions be made for a course suited to women, including household economy.

The college year consisted of two semesters, beginning late in February and closing with commencement in November, thus

affording an opportunity for students who desired it to teach a district school in winter. As will be seen, the entrance to the college classes was easy and of low standing. There was only one laboratory, and that was for chemistry in the north end of College Hall.

In 1870 it was not difficult to plan a course of study for an agricultural college. Except some points gathered from manual labor, which were not numerous nor very important, the students received, all told, eight weeks of daily work in horticulture and ten weeks in agriculture, and these topics were chiefly taught by the slow process of lectures. There were few books and papers to aid students in their pursuit of agriculture. The College was in the woods, so to speak, with no model to follow. Nowhere in this broad country were students taught advanced stock judging, stock feeding, the examination of dressed meats, soil physics, dairying, plant breeding, plant histology, ecology, plant pathology, the critical study of grasses, weeds, or trees, plant physiology, farm economics, the growing of forest trees, spraying for insects and fungus. Bacteriology as related to animals, dairying, soils, and plants was a sealed book.

The College had been started long before there was much demand for it by the best of farmers. This was due to the persistence of John C. Holmes, then secretary of the State Agricultural Society, more than to all other persons combined. Inaugurated under such conditions, adverse criticism was inevitable. Newspapers gave the College plenty of negative or left-hand advertising. For many years the only advertisements paid for was a part of a page in the *Michigan Almanac.* As late as 1870, the College had little contact with farmers by way of institutes or extension correspondence.

A few staunch men stood nobly by the College, notable among whom was Hon. Jonathan J. Woodman, afterward master of the State Grange and later master of the National Grange. From 1869 to 1871 he was speaker of the House of Representatives

and admitted that the College was not what it should be; but that was no reason why it should be discontinued, rather, "it is a reason why we should hold on, rally to its support, doing the best we can to help make it better, that it may become a credit to the state, the nation, and the whole civilized world."

A word about this chart on the wall, to which Mr. Monroe has referred. Six inches in length represents a year, and the width indicates the number of students in each year. The additions and endowments are represented on the upper side; the names of the presidents appear in the middle of the stream, sometimes deep and often turbulent. Leading events are named on the lower edge of the canvas. The widening stream representing 1,000 students, on which appears the name of President Snyder, is not the delta as it might seem, right at the entrance to a great sea, but is believed to represent this College fairly entering on a long series of years of ever-increasing prosperity when the students shall be numbered by thousands.

EARLY MEMBERS OF THE GOVERNING BOARD

CHARLES W. GARFIELD, 1870

To successfully manage an educational institution which connects itself with important matters of statecraft requires the highest type of public-spirited citizenship. To perform the best work in this capacity a man's purview must exceed the range of vision which is limited by a desire to serve his own ambition. Men of this type are not so plentiful as to make the task of their selection an easy one.

In any special type of education, which has to work its way into popular favor by the development of results which appeal strongly to the average man who feels it his right and privilege to criticize, there are special difficulties which often become a menace to the highest grade of management. When this management is in an appointive board the authority which is responsible for the appointments really holds the reins of the institution. In our own state the governor has from near the beginning of the Agricultural College had the appointment of the members of the Board of Agriculture. He has not always been guided by the highest purposes, but has occasionally considered these appointments as opportunities to wipe out the lesser political obligations incident to a political campaign.

However, as I review the history of our College management and recall the anxieties connected with its growth, I think we have been extremely fortunate in having at every period in its history representatives of the highest type of citizenship in the management of the institution.

In the early days the position of a member on the Board of Agriculture was far from being a sinecure. Not only did the members serve without pay, but the closest economy in their

personal expense was required. I recall on many occasions seeing these dignified gentlemen drawn through a continuous mud hole from Lansing to the College in a farm wagon very poorly provided with elasticity in its springs. These men were domiciled with the various members of the faculty during the periods of their meetings, and in the reports of the auditor-general I notice that in many instances the only bill rendered in the expense account was the railroad fare. It was at no small sacrifice of life comforts that these gentlemen performed the service of managing the College.

During those early days the students graded higher in age than now, and full-bearded men were common in the student body in the years immediately following the Civil War. I recall an instance when one of the recent appointees upon the faculty mistook a board member for one of these students and the conversation, which was intended to be patronizing, became extremely ridiculous.

I have been fortunate in having had acquaintance with nearly every member of the Board of Agriculture since it became the controlling body of the College. Of nearly fifty men who have served in this capacity under appointment of the various governors, I can speak of but few and choose them rather because of the impression they made upon my own mind as accomplishing results in connection with the evolution of the institution of more than ordinary value.

First of all, towering above his colleagues, is the figure of Judge Hezekiah G. Wells, whose home was in Kalamazoo. He was a man of poise; he had a wide range of ability and the most courtly manners; he was a natural leader. He came upon the board when his type of character was most needed. He was a fearless advocate of agricultural education when it had no popular favor; he was an earnest and persistent defender of the faith when an agricultural education was sneered at by the educators, and encountered the opposition of a united farm community.

Never once, while he was a member of the Board of Agriculture, did he falter in his purpose to make this first attempt in giving an education toward agriculture a successful object-lesson in the state of Michigan. While he did not live to see the full fruition of his faithful service, the dawn appeared before he laid his armor down.

Mr. S. O. Knapp, of Jackson, came upon the board when his practical knowledge of affairs was most needed in the erection of the second set of buildings and in the development of the campus. Unusual duties were placed upon the shoulders of Mr. Knapp because of his ability and his nearness to the College. His knowledge of business methods enabled him to economize the restricted appropriations granted by the legislature so as to make every dollar count for the institution. For many years he gave freely of his time and energy, and to him, perhaps more than to any one of the earlier members of the board, belongs the credit of instituting the policy of definiteness in the financial policy of the institution.

J. Webster Childs, of Ypsilanti, came upon the board after having political training and the acquirement of knowledge as to the points of view taken by the farmers of the state. He was a leader in the Grange movement and it was through the influence of his strong individuality that the farmers, through this organization, new at that time, were brought into sympathy with the College and began first to understand the possibilities in its methods of education.

George W. Phillips, of Romeo, was a leading stock man and one of the managers of the Michigan State Fair. He was also interested in the first movement to establish farmers' institutes in this state. He brought great strength and sympathy to the College through his commanding position in agricultural organizations and his profound faith in the purposes of the College.

Franklin Wells, of Constantine, performed the longest service of any man in the history of the Board of Agriculture of Michigan

and every year's service from the first to the last was of increasing value to the College. He was a practical business man and gave his attention largely to the handling of the finances of the College. He had little patience with glittering generalities. Exactness in method and clearly defined purposes, with complete records of all transactions in which public funds were employed, were matters of great concern to him. Governor Bagley, in naming him at his first appointment, said, "I want a good business man in the college management," and in selecting Mr. Wells he performed a most valuable service to the institution, the impress of which was etched into the College history during a period of more than a quarter of a century.

For many years the alumni of the College, while not criticizing the action of any governor in making the appointments, argued that there should be a graduate of the institution on its board of management, and Henry G. Reynolds, of Old Mission, was the first selection which recognized this expression and influence of the Alumni Association. Mr. Reynolds brought into the atmosphere of the board a new element. He was closely in touch with a large number of the graduates of the College; he understood their contentions for modifications in the trend of the College, and was fortunate in having a disposition which harmonized with the other elements of the board, and from the very outset his influence became strongly in evidence in the activities of the board.

Col. William B. McCreery, of Flint, came upon the board after having filled various positions in the state government and with a very clear understanding of the elements of opposition which had been so strongly in evidence during the earlier years of the college history. From the very outset he was ready to fight for the institution and would not for a moment listen to adverse criticism without putting up an aggressive defense. He was a man of quick intuition, ready in alternatives, earnest in his methods, a good story-teller, and never knew what it was to be

discouraged. His keen sense of humor many times enlivened sessions of the board which under the serious conditions would otherwise have been very somber.

Henry Chamberlain, of Three Oaks, twice served the state for a term of six years on this board. He was an example of old-time gentility, courteous in manners, a student of educational methods, a practical politician of a most excellent type, and a broad-minded and determined man. He was always a fine member to work with whether in committee of the whole or upon a special mission. He was a keen observer of men, and during his term of service perhaps had more to do with the selection of members to go upon the teaching force than any other member in the history of the Board of Agriculture. Wherever Mr. Chamberlain went he was a partisan for agricultural education, and he never considered it out of place to talk about the Michigan Agricultural College. The institution was on his heart as well as on his mind.

Cyrus G. Luce, of Coldwater, was rather a caustic critic of the College previous to receiving his appointment upon the board. He soon became convinced, however, of the great value the institution could subserve in the state, and because of his leadership in the Grange and in legislative halls he became a power for good in the development of the institution. And when he came into the gubernatorial chair, he, of all the governors, was the most regular in his attendance as an *ex-officio* member of the board.

Ira H. Butterfield, of Lapeer, came upon the board after having had a wide experience in the management of the State Fair Association and in filling a position of trust under the United States government. Having had journalistic experience also, his services were of peculiar value to the College in that he gave voice to its methods; and because he was a master of details, he was always ready with a wealth of information to meet almost any possible contingency in the movement of the College to

catch the sympathies of people generally in its behalf. He had genius in originating methods of promotion; he was resourceful in plans for advertising the institution, and he knew, better than any other member of my acquaintance, how to gather in adherents to the cause of agricultural education without making antagonisms.

As my mind recalls the other names connected with the College management in the early days, it seems as if I was committing a serious error in not calling attention to other men who did special services, but time will not permit. All honor to these citizens of Michigan who fought the good fight for a type of education which has permeated the whole vast field of school and college and university influence. They builded better than they knew, and today it would make our cup of happiness to run over if we could see these pioneers in the service of agricultural education witness the fruition of which they scarcely dreamed.

MENDELSSOHN'S ORATORIO

Elijah

WEDNESDAY EVENING

Soprano—Mrs. Lillian French Reed
Chicago

Contralto—Miss Viola Paulus
Chicago

Tenor—Mr. John Young
New York

Basso—Dr. Carl Dufft
New York

THE BACH ORCHESTRA OF MILWAUKEE
Christopher Bach—*Conductor*

COLLEGE CHORUS
Miss Louise Freyhofer—*Director*

OPEN SESSION OF THE AMERICAN ASSOCIATION OF AGRICULTURAL COLLEGES AND EXPERIMENT STATIONS

THURSDAY MORNING

DEVELOPMENT OF AGRICULTURAL EDUCATION

ELMER ELLSWORTH BROWN
Commissioner of Education

The pioneer farmers of America had a double interest in life. First and foremost, they were pioneers, with all of the dangers and excitements of that pioneer life. Secondarily, they were farmers. It was hard and rude and unskilful, the farming in which they were engaged, but it gave them the necessities of life. When the first dull opposition of nature was overcome, when cabins had been built and woodlands cleared and the plow had in some way done its first work, the soil showed itself responsive and fertile enough. For a time, at least, life was easier. But the zest of pioneering was gone, and the more adventurous of our people soon moved on to the West, where they might feel the thin edge of civilization still cutting its earliest way through raw nature and barbarism, and know that that keen edge was their own life and endeavor. The farmers who remained behind were now farmers only and no longer pioneers. They saw the first rank fertility of the soil fall back into more moderate bounds. Their life became tame and binding. New wants arose with the rise of new social relations. A few in every community were able, by insight and energy, to keep still in the forefront of things in that new age, but for many the occupation which made up the greater part of their life had become an unpromising, uninspiring, unenlightened servitude. In this jubilee today we are to recall the ways in which new zest has been brought into the depressed life of the American farmer, the ways in which his farm has been made part of a new frontier, and he has been made once more a pioneer.

At first the improvement of our husbandry was the work of a

few men, and these were men whose interest in farming was, in large part, a public interest. George Washington was one of the earliest and one of the most influential of these. First in war and first in peace, he was also, it would seem, the first American farmer of his day. His outlook over the educational needs of the new nation included proposals for the establishment of boards of agriculture, a military academy, and a national university. Other statesmen with a care for agriculture and other farmers who were statesmen in their view urged that practical provision be made for the collection and dissemination of agricultural information. In the opinion of these men it was information that was chiefly needed—information regarding the experience and experiments of those who were already most advanced in the practice of agriculture—to insure the general improvement of the farming industry. The new awakening in European agriculture had great influence among the leaders of American agriculture at this time.

It was while we were still under the Articles of Confederation that a beginning was made in the formation of agricultural societies. Pennsylvania and South Carolina had established such societies before the adoption of the Constitution. New York, Massachusetts, and Connecticut followed during Washington's administration. The publications of these societies had begun to appear before the close of the eighteenth century, and agricultural fairs came into being in the first decades of the nineteenth century. Various endeavors to secure the establishment of a national board of agriculture had led, before the day that we here celebrate, to the first seed distributions through the national Patent Office, and to the first separate agricultural appropriation, in 1854.

Through these several movements, supplemented by a comparatively early development of an agricultural periodical literature, and through many later developments of agricultural organization, the growth of interest in the improvement of

rural conditions has long been actively fostered. But our attention today must be centered upon the development of organized agricultural education, and to that subject we will turn without any further delay.

Let us first note some bearings of agricultural education which have often been discussed, but must be considered here again in the interest of true educational perspective. Historically it has been found extremely difficult to bring the subject of agriculture into any manageable pedagogic form. The fact that everybody in the country knows something about it is at first a hindrance rather than a help. It is difficult to treat the subject in such manner as to avoid, on the one hand, an excess of platitude, a repetition of what everyone knows or thinks he knows, and, on the other hand, an excess of unutilized natural science, deeply interesting in itself but hard to apply on the farm. Certain other subjects, of which education itself is one, share in this handicap. It is a difficulty met with in European schools of agriculture, and it had not been overcome in Europe or America when the Michigan State Agricultural College came into being. The most effective training for manual occupations was still some form of apprenticeship, apart from schools, while the school had long held the foremost place in preparation for literary pursuits. How to combine, in one educative process, the advantages of the school and the advantages of the apprentice system was the problem of agricultural education. In one form or another it has been the problem of all our education for special occupations in the past half-century. For the student of educational history, then, this problem of agricultural education appears as one phase, and a peculiarly difficult phase, of the larger problem of training for any particular vocation in life. You will not look to me to contribute anything to the special history of this institution, which others, here on the ground, may be expected to treat so much more effectively than I could treat it. But my theme deals rather with the broader move-

ment of which the notable history of this institution forms a part.

It would be difficult to say just where and how systematic instruction in the principles of agriculture took its rise in this country. Such instruction was given in some sort in Moor's Indian school, out of which Dartmouth College arose, back even in colonial days. Benjamin Franklin proposed such instruction for the academy at Philadelphia, the forerunner of the University of Pennsylvania, but it does not appear that this part of his plan was realized. In the 20's and 30's of the nineteenth century great interest was excited in the so-called manual-labor schools. It was proposed that a farm be attached to the schools, and that those who were studying during a part of the day should engage in ordinary farm labor during another part of the day. The purpose, to be sure, was primarily to provide a way by which students might "pay their way" through school. But there was a thought, too, of instruction in the better methods of farming, and at least a vague dream of something better yet, the vital union of thought and manual toil. Some of the old-line colleges showed at least good-will toward the scientific aspects of agriculture, Columbia even establishing a professorship under which agriculture was ranged alongside of other sciences. Then just at the middle of the century, the state of Michigan provided in its constitution of 1850 for the establishment of an agricultural school, and seven years later this institution, the first of its kind and grade in the United States, was ready to enrol its first students. Pennsylvania had already incorporated its Farmers' High School, but it was preceded by two years in the actual opening by this State Agricultural College of Michigan. A little later in that same notable year, 1857, Justin S. Morrill of Vermont first introduced his measure for the endowment of agricultural and mechanical colleges in the several states by the national government.

What is especially worthy of note at this point is the fact that

this movement, which was primarily a movement of the people or rather of the leaders of the people, found parallel embodiment in both state and national legislation. At first both the states and the nation moved but slowly and tentatively. But within a few years large beginnings had been made. In this, as in other public interests, within the broad limitations of the national constitution, working adjustments of state and national agencies to each other have been made from time to time, in view of practical needs rather than of academic theories.

The great, epoch-making act of this whole movement was undoubtedly the Morrill Act, which finally reached its passage when civil war had lent new power to the spirit of nationality in the national legislature. In signing this act, on July 2, 1862, Abraham Lincoln, that "new birth of our new soil," that surveyor of western lands, who was to drive the labor of slaves from our American fields, now joined his work with that of Washington, to make our American tillage the doing of men made free by knowledge and enlightened skill.

By the Morrill Act of 1862 the national government gave aid to the states, in the way of liberal grants of lands; it encouraged the states to do in their own several ways the work of higher education in the domain of agriculture and the mechanic arts. While technical studies were brought to the front in this act, it refused to draw a line of opposition between those technical subjects and the training which makes for liberal culture. And both technical and liberal training were joined with preparation for the defense of the nation's life.

Other important acts soon followed: That establishing a national department of agriculture, in 1862, which department was raised to cabinet rank in 1889; and that establishing a department of education in 1867, which department was reduced to the rank of a bureau in 1869. In their different ways, these two government offices have both had to do with the administration of the later acts for agricultural education; and

I think I may add that on their effective co-operation depends the full realization in the future of the high purposes for which those acts were passed.

After the Civil War the establishment of agricultural colleges went steadily forward till such institutions, aided by the land grants of the general government, had been erected in all of the states, with eventually sixteen schools for colored students added in the southern states. The association of these colleges was organized, the Hatch acts brought new aid from the general government for the maintenance of experiment stations, the second Morrill Act added its large federal appropriations for the furtherance of the ordinary work of the colleges, the summer graduate school was organized, the Adams Act provided for advanced research in agriculture, and finally the Nelson amendment to the agricultural appropriation bill of 1907 has brought still larger financial support to the colleges, together with permissive provision for the use of a part of the federal grant in the training of teachers of agriculture. It is a record of notable advance, and we can hardly doubt that the great heart of Washington would have been glad to see the results that we may see today.

When we attempt to interpret the course of this educational development and to plan for further advance, we need the help of some general conceptions relating to our social organization. For it is evident that agricultural education cannot be a thing apart and alone. Its real and lasting strength is to be found in its connection with general education. And the strength of general education and of all of its special developments is to be found in the connection of the schools with the real life of our people.

Passing over all other views of our democracy, however essential and interesting they may be, permit me to call attention just now to the function of those who are called leaders in a democratic society. For we now commonly recognize the fact

that democracy does not dispense with leaders, but rather makes the strongest demand for positive leadership. But in such a society it is not for one individual or one class simply to lead, while another class simply follows. The true leader in a democracy is one who, while leading in all reality, is capable of learning from his followers. And the followers of such a leader in a true democracy are not those who follow because they do not think, but those who follow because they think and are able to recognize their leader. They follow because they are convinced. So our whole social fabric is made up of leaders who must learn if they would continue to lead, and their peculiarly restless and skittish constituencies. Here as everywhere the relation of leaders to constituencies is permanent and essential, but within that permanent relationship there is continual interplay and shifting of parts. It is a normal condition with us that those who have the subordinate part should be increasingly intelligent, critical, and ready to assume the actual leadership.

This is the state of things that our system of education fosters and must continue to foster. It must bring forth scientific experts who shall be able to teach the people the principles underlying the arts of life, and it must train up a people to make for the expert an intelligent constituency, quick to seize on all that he may offer for the betterment of their practice, and quick to reject those suggestions that they cannot put to use. So our public health rests upon the co-operation of highly trained experts in medicine and sanitation and a people who can act intelligently upon their directions and regulations. So our public and domestic architecture is improving slowly—very slowly—through the co-operation of architects who know their art and a building people who know their architects, and who follow them in part and frustrate them in part. So, too, our agricultural education must proceed. There must be training of the highest sort for our agricultural experts. More than that, at the topmost reach of our agricultural education there must be that which is not

commonly recognized as education at all, the pure research of the pure scientist. For no education can continue to be really alive unless it draws directly, from some source of new and abounding knowledge, a fresh supply, never yet handled and made common among mankind. It may be very little that any year or any age may have to give that is altogether new, but that little will sweeten all the rest. Then our system of education must reach down to schools of the lowest grade, the little country schools, in which the capable constituency of the great experts is to be trained; and there, too, some of the future leaders are to make their first beginnings. The most of those in such schools are to live by the practical art of farming. But in these days they are to have the skill to take the science of the scientist and transform it into the art of their lives. They are to read agricultural bulletins and understand and use them. They are to pick their way and keep from being mired in the mass of such literature now provided for their reading. They are to attend institutes and conventions, where they will listen with discrimination to long and learned papers, and make short and pertinent speeches of their own. They are to find the farm interesting in the highest degree, because of new hopes of profitable production which it offers and because of its connection with the great world of ideas.

When we grow more skilful, we shall make elementary schools of a better-rounded type, in which the book-learning that has long been the distinctive province of the school shall join to itself the best things in the old system of apprenticeship; and from that combination shall arise something better than either one in its lonesome isolation. Already we are beginning to make institutions somewhat of this order, and it will be done much better yet as time goes on.

This, then, is what we may see as the ideal, in agricultural education and equally in education of other kinds, and perhaps of every kind: A system of schools complete in its sequence

from the lowest to the highest, in which the study of books is closely joined with training for some of the practical arts of life; in which all practical training is kept in vital touch with general education; in which the ability to form sound and stable judgment is sought throughout as a thing of very great price; in which the higher schools send into the lower schools an unbroken succession of teachers who both know the truth and are able to bring others to a knowledge of the truth; and in which, finally, the stream of knowledge fresh and new, from some department of pure research, shall never fail to keep fresh and bright the old wisdom of the ages gone before. Or, in more concrete statement, our elementary schools and high schools in country communities are still to be primarily schools of general education, but with much more of training in the arts of the farm, and the sciences lying near to those arts; our state colleges of agriculture and mechanic arts are to prepare young men and young women to read intelligently the literature of scientific agriculture, to form independent judgments in agricultural matters, and to bring their new knowledge into connection with the real work of the farm; these state colleges, moreover, are to provide well-trained teachers of agriculture and related subjects for the elementary and secondary schools; the colleges of agriculture, still further, are to be co-operative educational institutions and not merely special and local institutions—they are to co-operate with similar institutions in other states, in order that the work of one may be strengthened by the work of all, and co-operate with the universities of their several states for the innumerable advantages to both which may come from such united effort. The National Department of Agriculture is undoubtedly to continue its remarkably wide and influential work, its expert investigations, the issuance of manifold and vastly useful publications, and its furtherance of all manner of agricultural education and research in the several states. Finally, the Bureau of Education is to do as thoroughly as possible the part of this work

assigned to it. I venture the hope that with enlarged resources it may do more than it is now expected to do, and that without trespassing on the proper field of other institutions.

Let me speak a little more particularly of the part of this program which falls to the education office of the general government. It can do its best work, I think, as a co-ordinating influence. It can bring to the notice of the less favored institutions information concerning the experience of more advanced institutions. It can call attention from time to time to the relation of agricultural education to general education. It can survey the educational field and possibly point out dangers to be averted or weak places to be strengthened. It can, finally, discover things that need the doing and are not attended to by any other agency, and can see that some part of such lack is supplied. So much as this I hope the Bureau of Education may be able to do for our agricultural education. And so much as this I may say it will undertake to do as far as its resources will permit.

Just at this time, a survey of the field seems to show that the paramount need is the need of a supply of qualified teachers. Arrangements have already been made for the publication in the fall of an issue of the *Bulletin of the Bureau of Education* devoted to the present condition of the agricultural and mechanical colleges, and particularly to the ways by which teachers may be trained in those colleges to meet the needs of high schools and normal schools in which agricultural subjects are taught. A preliminary account of the history and present condition of agricultural education throughout the world is to appear in the near future, in another issue of the *Bulletin*, which will, it is hoped, be of help in such training of teachers and a help to those teachers who are already in the field.

In conclusion, the view cannot be too strongly stressed that all of this agricultural education is a contribution to the general education of the American people and to the betterment of

American life. You who celebrate the fiftieth anniversary of this institution realize, as the history of this College has shown, that it is not simply larger crops and better breeds of stock and a more profitable output of farm manufacture for which you are laboring; but through these means and through all other interests of the modern farm, you are working for the improvement of American citizenship, and that with special reference to the needs of this great state of Michigan. May you long continue to serve the commonwealth and the larger republic as faithfully and as successfully. And may every good cause in this land feel the reinforcement of a wholesome and vigorous life in the homes of our country communities, which have been made more prosperous homes and better homes because of the work that you are doing here.

THE DEVELOPMENT OF ENGINEERING EDUCATION IN THE LAND-GRANT COLLEGES

WINTHROP ELLSWORTH STONE

It is matter of conjecture as to how far Senator Morrill and his colleagues foresaw the great and true significance of the now famous act of Congress establishing the land-grant colleges. That it was to become the actuating force in a new educational movement, and that it was to influence the industrial and commercial growth of the nation profoundly, were generalities in which its advocates undoubtedly believed without being able to conceive of the details of their operation. The rapidity with which these institutions have sprung into commanding positions, have overcome prejudiced opposition, and have won public confidence and respect must have been beyond the comprehension of these men, for never in the previous annals of education has anything of equal or similar character or extent been recorded.

But now, after the passing of little more than a generation, he who would chronicle the manner and extent to which these land-grant colleges have developed in respect of the single department of engineering education finds himself—so extensive is the subject—dealing with the leading facts of the times in regard to education, applied science, and industrial and commercial progress.

The impulses set in motion by the passage of the Morrill Act have developed, in a remarkably short time, a new education; have achieved great popularity and influence; have appealed to the democracy; and have proved its inestimable value to the industries. As is well known, the act, while remarkably broad in its scope, specifically emphasizes two principal lines of educational effort, viz., in "agriculture and the mechanic arts," and,

properly, these colleges have from the beginning in accordance therewith expended their energies mainly in these two industrial fields.

My duty at this time is to set forth what has been accomplished by the land-grant colleges in the sphere of mechanic arts. In this discussion I shall broadly include all of those institutions receiving state or federal support, in which engineering is taught, since with few exceptions the state universities and colleges engaged in engineering instruction are also beneficiaries of the Morrill Act.

It is worthy of note that, in nearly every instance, the demands upon these colleges for instruction in "mechanic arts," especially in the earlier days, have greatly exceeded those for "agriculture." The aggregate enrolment of students of collegiate grade in engineering courses in these institutions has been many times greater than in courses in agriculture. Frequently the representatives of agriculture have shown impatience at these conditions, ascribing the inequality of attendance in these departments to unfair discrimination on the part of the college management. The real causes, however, seem to lie elsewhere. Instruction in engineering was earlier and better organized as regards pedagogical form; the industries included under mechanic arts have had a better appreciation of the value of technical training; there has been and is a tendency among young people to regard agriculture unfavorably as compared with other pursuits; and, finally, the recent extraordinary developments in manufacturing, mining, and transportation have created a great demand for men trained in the mechanic arts, which no inducements in the field of agriculture could match. The rapid development of engineering education, therefore, has obeyed the influence of distinct public needs and demands to meet which has given college authorities no end of difficulty and which, under these conditions, they certainly have had neither power nor desire to stimulate.

The conditions which have been less favorable to agricultural education are now, happily, disappearing and there can be no doubt that the agricultural courses in the land-grant colleges are soon to become quite as popular, attractive, and effective as those in engineering; a situation which I am sure will be welcomed by everyone who desires to see these colleges fulfilling their original purpose to the highest possible degree.

In endeavoring to trace the development and present status of these engineering schools, one soon is impressed with the fact that he is dealing with practically the whole history of engineering instruction in America, and, next, he realizes that this record constitutes an important part of the world's progress in this field. In fact in the essential development of engineering education the land-grant colleges, in their various forms of organization, have always been foremost and in the aggregate are today the principal exponents of this phase of education.

Systematic instruction in engineering science is a recent thing; it is a constituent part of the remarkable development of industrial and technological training which is recognized as the principal educational event of the last half-century. It is true that some isolated and vague experiments in this field were undertaken nearly a hundred years ago, but an estimate of the scope and value of these efforts may be had by considering how imperfect was the existing knowledge of pure science until well into the nineteenth century, while the applications of these sciences to the arts and industries were scarcely recognized, much less organized into any pedagogical system, until very recently. With two or three exceptions[1] there was in America no organized attempt at engineering instruction prior to the Civil War. Contemporaneous with, or following, this period came three epoch-making events, each of which was in itself of great importance but which, in conjunction, have wrought an extraordinary national

[1] Rensselaer Polytechnic Institute, founded in 1824; the Lawrence Scientific School, in 1846; the Sheffield Scientific School, in 1847.

influence upon education and industry. These events were: the establishment of the land-grant colleges; the great wave of scientific discovery and invention; and the remarkable commercial and industrial development of the country. Under these conditions the growth of engineering schools has been little less than remarkable.

In claiming thus for the land-grant colleges a considerable degree of prestige on account of the development of engineering education, I am not unmindful of the great contributions to progress in this field made by other institutions. For this all due credit should be given. Nevertheless, if one could conceive of the annihilation of what has been done and is being done in the land-grant colleges in engineering science, the loss would involve, I am sure, a very large part of the present possessions of engineering education in America, if not of the entire world.

That this should be so is, after all, quite natural. If anything less had been achieved upon this special foundation and in the stimulating industrial atmosphere of America, our institutions would be blameworthy indeed. The conditions have been unusually favorable and, in general, they have been utilized with marked success.

This development has been on characteristic and, in some respects, unique lines. Because these institutions were new foundations—for the most part—they were free to build new structures untrammeled by conventionalities and free from useless imitations. Just as our engineers are notable for their initiative, adaptability, and resourcefulness, so our engineering schools have met and solved problems on the ground, in a practical way. Without ignoring what was of value in previously existing systems, they have been free to strike out in new lines. Wisely, they have from the first endeavored to adapt their methods and scope of instruction to the distinct needs and conditions of our industries. This policy has evoked much sharp criticism

as to its real educational value, but the schools have gone steadily on, creating a new education with a new spirit; winning the confidence of the commercial world; and becoming the chief bulwark against the growing prejudice against "the college graduate." Recognizing that engineering is an intensely practical profession, they have sought to impart a training which should develop in their students the power to do things effectively, in the belief that this is the modern criterion of education. To these established characteristics of originality, adaptability, thoroughness, and efficiency, our engineering schools undoubtedly owe their high standing, popularity, and the confidence of the professional and technical world.

Since these institutions by reason of their origin and functions form a class by themselves, it is important to classify and enumerate their features of organization, method, and curriculum, which constitute the present basis of engineering education in this country.

The institutions are for the most part of collegiate grade, receiving students from the secondary schools and administering a full four-years' course upon the completion of which a variety of degrees of the bachelor's rank are conferred. With few exceptions, the land-grant colleges are coeducational and women students are occasionally found in the engineering courses. A few have been known to graduate, but of their subsequent careers the engineering chronicles are significantly silent.

Measured by the conventional standards established by schools of liberal arts, the requirements for entrance are not high, varying in different parts of the country from six to sixteen high-school units. In many instances these requirements are higher than for the agricultural school in the same institution. As a rule, in any given part of the country admission to the engineering school is practically on the same basis as to the college of liberal arts, although usually not identical. The authorities are agreed, for the most part, that in state institutions

it is unwise to require preparation which the average public schools of the community cannot supply. Nor is it the practice to include Greek or Latin in these requirements. Weight is laid chiefly upon English, mathematics, and the sciences, as being directly necessary to the work of the engineering courses. In other matters, the engineering schools have not been bound by the practices of others, but in their entrance requirements have given consideration to the educational opportunities and needs of the industrial classes. On the other hand, they recognize elements of training and preparation which are quite ignored in the purely academic requirements for colleges of liberal arts. It may be claimed, consistently, that entrance requirements to engineering schools should differ from but not be of lower grade than those of colleges of liberal arts. Everyone knows that book knowledge alone does not give power and efficiency, and it would seem that in standardizing entrance requirements to engineering colleges some weight should be given to the maturity and experience of the applicant. In short, our engineering schools are coming to recognize that a valuable part of the preparation for an engineering course may be obtained in the field, shop, or office, and cannot be measured in high-school units alone.

The curriculum of our engineering schools is characterized by the weight given to mathematical, scientific, and technical subjects in contradistinction to the classics and humanities, although in all of these there is an evident purpose to retain in the course of study as much as possible of the cultural elements. English, the modern languages, history, and economics are for this reason given much weight. The physical and chemical sciences, mathematics, shop practice, and drawing are the fundamentals of engineering education, and following these in sequence come the subjects of mechanics, machine design, thermo-dynamics, hydraulics, and the various specializations pertaining to the different branches of engineering practice.

The student has little choice of subjects in any given course, for the elective system is unsuited to the mastery of a logical sequence of facts and principles. The curricula of engineering courses are, therefore, almost exclusively prescribed. There is, moreover, a characteristic blending of the theoretical and practical. A knowledge of the hypotheses and theories of pure science is fundamental to the training of an engineer, but they are valueless to him unless their applications are traced. Naturally the laboratory has a large place in this scheme of instruction. It is necessary that the student have contact with and an intimate knowledge of the machines and materials with which he is later to deal. The laboratory courses and equipment are, therefore, striking characteristics of our engineering schools. In chemistry, physics, electricity, steam engineering, shop practice, material testing, hydraulics, and drawing each student must be supplied with a work place and equipment for the study of the actual phenomenon or object under consideration. The shops and laboratories of a modern engineering college have all of the aspects of a commercial establishment, and contain types of the real machines and materials of commerce. These methods and equipments are responsible for the costliness of engineering education in marked contrast to courses in liberal arts.

From the nature of the subjects taught, the standard of scholarship in our engineering schools is high. The predominance of mathematical subjects; the accuracy of observation and statement required; the analytical character of much of the work render it impossible for a dull man to succeed. These schools are not training mechanics or skilled workmen. Manual dexterity is important and a knowledge of practical operations is essential to the engineer, but his power lies in his capacity to organize and utilize forces and materials, and his training is intellectual rather than manual. The actual expenditure of mental effort required of the engineering student is, I believe, quite exceptional, for the successive steps of advancement to

which he must attain are fixed and absolute; they involve the exercise of opinion and criticism but slightly; they require rather a definite knowledge of facts and their application which permits of no error or half-knowledge. High standards must be maintained, for the graduate must, ultimately, sustain the most exacting tests in practical experience. Nothing would more speedily destroy the efficiency of engineering training than low standards of scholarship.

The scope of engineering instruction is as broad as the country itself. In all of the schools the general principles and fundamentals are taught, but beyond this is a wide variety of development into special lines related to sectional or local interests. Civil, mechanical, and electrical engineering are the subjects most commonly presented, but several institutions offer courses in mining engineering, while sanitary, municipal, and chemical engineering and architecture all have honorable place in the list. Certain institutions offer instruction also in engineering principles as specially applied to sugar-making, irrigation, forestry; marine engineering is also taught in one or two schools, and there is an interesting and increasing development of engineering instruction as applied to farm machinery and operations—which is perhaps best designated as farm mechanics.

The extent of the courses of instruction in engineering is, in point of time, usually four years, of which the first two are spent upon the fundamental and general subjects, and the last two upon those which are special and technical. Among other usual requirements for graduation is the completion of an original study or investigation, the results of which are presented in a "thesis." The graduate receives in most cases the degree of "Bachelor of Science," which is frequently further qualified with reference to the particular line of study pursued. A few institutions give professional degrees, such as "Electrical Engineer," "Civil Engineer," etc., for the completion of undergraduate courses; the larger and better equipped colleges also administer

graduate courses, for which advanced degrees are granted. In a few instances, the honorary degree of "Doctor of Engineering" has been given.

By no means a minor phase of the work of these institutions is that of research and investigation. Countless problems present themselves in connection with every industry, in regard to the improvement of methods, designing of apparatus, use of materials, fixing of standards, etc., and for information on these matters the public applies with confidence to the engineering schools. Scientific and technical literature teems with articles from teachers and students of engineering, and many of the contributions to knowledge from this source are of national, or, indeed, world-wide fame.

Having thus briefly outlined the present methods and work of the engineering schools, I would broadly characterize their distinguishing features to be: First, an adaptation of instruction in theory and practice into a course of training which is at once of high educational value, and of special application to practical affairs; and, second, the high efficiency in turning out a product which commends itself to practical men, and which is ready for immediate participation in the work of the world.

WHAT HAS BEEN ACCOMPLISHED

The immediate products of these schools are thousands of young men trained in accurate, scientific methods of thought and study; skilled in the application of scientific principles to practical affairs; and grounded in the fundamental principles of engineering work. That there exists a great demand for young men of this type in all kinds of manufacturing and productional enterprises immediately makes clear that to the individual this kind of education is profitable because of the good market for his accomplishments, and not only is the immediate opportunity for the young graduate exceptionally good but the way is open to a career of great responsibility, influence, and remuneration.

On the other hand, the value of these trained forces to the industrial and commercial interests of the country cannot be overestimated. There could be no continuous development or progress without these trained men and, though the graduates of these schools are still young, their influence upon methods, practice, and operation is already an important factor in our country's development.

A further result of this breeding of trained engineers is to educate the public to a better appreciation of the value of the application of scientific study and methods to all business and industrial operations. The development of this understanding is altogether significant. A few years since, any young man who based an application for a business position on the fact that he was a college graduate would probably have been treated with contumely. Now all of this has been changed, and it is the ordinary experience of engineering schools that all of the members of their graduating classes are sought for professional positions before they have received their diplomas. This broader appreciation of the value of trained men and of the application of scientific methods means true progress in our industrial and commercial development. It means better public utilities; higher factors of safety and health; and cleaner, saner, and safer living for the whole people.

Still further, and quite aside from the professional and technical influence of the graduates of these schools, I regard it as not presumptuous to claim for them a citizenship of high quality. I claim that no other training is likely to breed so genuine a contempt for shams and hatred of dishonesty as the engineering training, and that no other class of men are so likely to stand for right principles in the administration of public offices as well as for private honor and honesty. Of course there will be exceptions to this rule, but if there is anything in dealing with the immutable laws of nature; anything in the engineer's conception of accuracy likely to develop respect for law and sincerity

of purpose, then the training which the engineer receives cannot but have its corresponding effect upon character.

Finally, among other results of the work of engineering schools, we may not ignore the actual contribution to technical and scientific knowledge made through investigations and researches carried on in the laboratories of their institutions. These investigations relate to every possible phase of the production and utilization of power, the performance of machines, and the characterization of the physical properties of materials of construction. To illustrate more fully what is meant by this statement, I may point out that a generation ago it was the exception that any machine was constructed or purchased on a specification as to its efficiency of performance, or for any material of construction to be supplied on a specification of qualities. Now the effort is to base all transactions upon a specification of quality or efficiency based upon accurate scientific tests. For instance, no one now buys a steam boiler except on specification of its evaporative efficiency, or steel, except upon specification of its strength, or paint, or coal, or cement, except upon certain guarantees of quality, and even the physical characteristics and qualities of timber are now being determined and fixed in engineering laboratories as a possible basis for future use in this way. The work of determining these standards, of devising methods of testing, of accumulating the vast data of reference, and of actually carrying on these tests and determinations has been the contribution of our engineering laboratories. How vast this is and to what an extent it controls and improves engineering practice can be imagined, but scarcely comprehended. In the great engineering societies, engaged in promoting and fixing engineering standards, the teachers and graduates of engineering colleges are prominent and, through these channels, exercise their influence on professional practice. Another important contribution from the teachers of engineering has been the development and organization of the material of instruction.

A generation since, scarcely anything had been done toward systematizing engineering instruction, but during this time curricula have been perfected, texts written, laboratory experiments devised, and the entire plan of teaching brought to a high degree of efficiency.

These facts indicate that the work of the engineering schools of the land-grant colleges has been quite as extensive, valuable, and useful in its way as has ever been accomplished in any educational field in a like time. Indeed, in view of their rapid development and the extraordinary contemporary interest in technical affairs, probably no other schools have exerted so great an influence in so short a time.

WHAT IS TO BE THE FUTURE DEVELOPMENT OF OUR ENGINEERING SCHOOLS?

Up to this time, engineering instruction as an organized force of education has been occupied with laying foundations; with systematizing and developing its teaching; with preparing texts and lectures; and with the adaptation into teachable form of an enormous mass of material. It has been burdened with the demands for practical men. It has been called upon to solve problems; to supply men; and to meet the exacting demands of an unparalleled commercial and material development. Much of this work has been, of necessity, of an elementary character because of the absence of any other agency to perform it. The requirements growing out of these conditions are now being fairly well met in the various engineering colleges. We shall probably next see a differentiation of this instructional work by which the elements of engineering and industrial training will be administered in industrial, trade, and manual-training schools. In this way, the opportunities for this kind of training will be greatly multiplied and made available to far greater numbers of students than at present, and the general effect of this upon the public will be vastly beneficial. The engineering schools

will then be free to devote their resources to instruction and research in the higher branches of technology.

A logical step in this direction will be the establishment of bureaus or laboratories devoted entirely to investigations of engineering problems and the fixing of standards. I believe we shall come in this way to the engineering experiment station, the analogue of what has now become so important an adjunct of agricultural instruction, namely, the agricultural experiment station. One state[1] has already established such a research station with generous financial support. There can be no logical argument advanced for the agricultural experiment station which will not apply with equal force to the engineering station, be it on account of the important interests involved, the problems inviting solution, or the industrial value of such an institution.

In conclusion, one cannot contemplate the developments of these institutions without a feeling of pride in their achievements and a conviction that the phase of education which they typify is destined to become more and more important in America. The essential basis and foundation of a nation's welfare is to be found in its industrial conditions. It is true that those abstract qualities which contribute to national greatness and patriotic citizenship are the offspring of ideals rather than of material things, but these can never come to their fullest fruitage without that substantial foundation afforded by rational and well-balanced industrial forces. The highest development of national ideas is like a flower whose beauty is unfolded in a clear atmosphere, while its roots find anchorage and nourishment in the fertile stratum of an intelligent industrial democracy. True industrial progress consists in utilizing with ever-increasing economy and accuracy natural forces and materials, in more scientific methods of operation and management, in securing

[1] The University of Illinois established an engineering experimental station in 1903.

better conditions of life for industrial workers, in furnishing products of better quality at lower cost, and in narrowing the gap between the employer and the employee. Education alone can accomplish these things, but it must be an education which reaches the industrial classes and applies to industrial conditions, and this is the true aim and spirit of our land-grant colleges.

THE AUTHORITY OF SCIENCE

WHITMAN H. JORDAN

As a prologue to the subject that I have assigned myself, permit me to present to the officers and students of the institution whose guests we are, my greetings and felicitations. This is, indeed, an occasion for well-deserved congratulation and praise. We are assembled within the borders of an institution that for fifty years has rendered distinguished service in a new field of education, and there are some features of this service which merit generous and grateful recognition.

To the trustees and faculty of this College, I would say that it is a notable achievement to have taken a leading part in building new avenues along which knowledge has approached more closely to human needs, especially when to do this in the face of unbelief or of dogmatic opposition has required on your part a tenacious faith and an abiding courage. At the same time you and your predecessors have manifested a spirit of rational and safe conservatism. While your College has departed widely from the curricula of the older institutions, it has held fast to the great truth, the soundness of which can never be successfully assailed, that the only way to uplift any industry is to develop among those who are engaged in it not only technical knowledge and skill, but intellectual and moral force. To this end the vagaries and educational poverty of extreme specialization have not been allowed to seize upon your courses of study. Evidently you have not believed that "intensive knowledge" of one subject compensates for "extensive ignorance" of everything else. It is clear that you have not been willing wholly to subordinate to his vocational skill a man's intellectual and social well-being. This

much of the faith and practice of the fathers has remained with you. May you never lose it!

I suspect that your wise conservatism has been due partly to the fact that you have had among your number great leaders and teachers who have been both expounders of truth and centers of inspiration. Two of these I came to know a quarter of a century ago, one of whom, ripe in years and full of honor, has entered into his rest. The other with unabated zeal for truth and undiminished loyalty to your interests is still your beloved associate. Evidence of the influence of these men and of the policy that they helped to sustain is seen in the remarkable number of the sons of this College who, in all parts of the United States, are occupying positions of honor in the field of agricultural science as teachers and investigators.

I congratulate you on the record of fifty years. As a fitting commemoration of the spirit and influence of your honored institution and as pointing to the true philosophy of all education, I would that in passing we might pause to erect a wayside altar and, in characters so bold that he who runs may read, leave on it this inscription: *What man is determines what man achieves.*

The suggestive title of a recent book written by a distinguished graduate of this College is *The Outlook to Nature.* This volume, that fifty years ago would not have been well understood, is symptomatic. It worthily expresses a trend of thought in education and in practical affairs that is one of the most noteworthy features of the present time. Man is just now very busy discovering himself and his relations to the physical world. He is studying and mastering his environment as never before. The rise of institutions of investigation, the crowded state of university and college courses in the sciences and their applications, university-extension courses along popular scientific lines, the wide attention given to nature-study, the many assemblages of farmers for the consideration of subjects semi-scientific in their character, and indeed the knowledge applied to our whole

economic progress, are convincing evidences that the outlook to Nature's methods is earnest and widespread.

The serious side of this world-wide movement is the conviction that science is a trustworthy guide in directing our activities. In all ages man has been prone to seek the guidance of authority. He listened in faith to the prophets, sought the counsel of the ancient oracles, accepted the dogmas of the church as arbitrating all truth, both temporal and spiritual, and has been the dupe of the necromancer and the faker. But now we have turned to science and, excepting in things spiritual, it utters the final word. To be sure there are still those who scoff at the scientific man as unworthy of confidence, sometimes with good reason, but on the other hand, many trust him over much and behave toward his utterances as though they are infallible. Comparatively few use knowledge in a discriminating way; indeed few are qualified to do so, for in this, as in many other weighty matters, the masses walk by faith and not by sight. If, then, science is the oracle of today, what a grave responsibility attends its teachings! He who assumes to interpret Nature must reckon not only with truth but with his fellow-man whose welfare is to be safeguarded.

This is more than a fancied obligation. Science has come to be closely concerned with the large affairs of human life and activity. It lays its compelling hands upon Nature's great forces, directs agriculture and the industries, designs machinery, builds bridges, protects health and prolongs life, feeds the intellect, is a theme for literature, and essays to invade the great mysteries of religion and the future life. Its conclusions guide our vocations, are the dicta of the classroom, and are proclaimed as truth from the platform and pulpit.

How intimately, too, has science laid hold upon our individual lives! It has greatly increased our comforts and intensified our pleasures. Whether we travel abroad or abide at home, we are the subjects of its beneficence. Indeed, it has also entered into our anxieties concerning our most serious relations. When we

survey our morning meal, we consider in terms of chemistry whether the repast is nutritively sufficient and what our chances are in a physiological contest with its germs and germicides. A glass of water on the railroad train is taken with proper scientific reservations as to our future prospects in the hands of the doctor and the nurse. The wisdom of the crucible and the microscope have even been invoked in the domain of our religious thought, sometimes to assure us concerning the verities of the Christian religion and sometimes to assuage our fears as to the certainties of divine retribution.

But what is science and from whence comes its authority? On what grounds may it rationally appeal to our confidence? Those of us who accept its verdicts as a part of our intellectual equipment, to whose activities truth is a blessing and error a disaster, whose personal and material well-being may be jeopardized by unsound conclusions, have a right to ask these questions and ask them insistently. I crave your indulgence while I attempt to answer them.

Concise definitions of science are, "knowledge amassed, severely tested, co-ordinated and systematized, specially regarding those wide generalizations called the laws of nature." Or, what is simpler, "knowledge gained and verified by exact observation and correct thinking." The specifications, "knowledge severely tested," and "knowledge gained and verified by exact observation and correct thinking," clearly indicate, not only what science is, but what it is not. It is not opinion, it is not platform speculation, however eloquent, it is not truth diluted or distorted by much repetition, it is not magazine exploitations of the new and wonderful in a way that fires the imagination but deceives the understanding, it is not theories partially supported by data, it is not dangerous conclusions vitiated by confessed errors or propped up on all sides by "ifs" and "provided," it is not a "report of progress" that shows little more than what the investigator hopes some time to prove and will take up again

when he has opportunity—true science is none of these things. Some of them may be steps in its direction, but they do not constitute "severely tested" or "verified" knowledge. So obvious a truth would scarcely need stating, were it not for the fact that our scientific literature is submerged with increasing records of imcomplete and inconclusive observations. It is a sobering thought that only a minor proportion of the mass of generalizations that are published endures severe scrutiny and becomes permanently incorporated into the body of science.

Scientific generalizations at their best are far from infallible. Every spot of truth is so surrounded by unpenetrated, and therefore unknown, regions, that many conclusions are properly held to be tentative. Even some deductions, the result of researches apparently most exhaustive, that are stated without reservation or modification, are abandoned as larger knowledge is gained. A most striking example of this is furnished by the investigations as to the sources of nitrogen to the plant. In 1857–58, Lawes, Gilbert, and Pugh carried on at Rothamstead, England, what has been pointed to many times as a classical research on the question of the use by plants of the free nitrogen of the air. The inquiry was most severe. All available knowledge was brought to bear on it, and the conclusion was reached that uncombined atmospheric nitrogen is not available plant food. This verdict is now reversed by later evidence of the soundest and most incontrovertible kind. In 1857 knowledge of the biological activities of the soil was very meager. The Rothamstead investigators worked with sterilized earth, not realizing that they were thus destroying the germ life which, as we now know, somehow functions in aiding the legumes to utilize atmospheric nitrogen. While the plants did not acquire free nitrogen under the conditions involved in the investigation, these conditions were made greatly unlike those prevailing in nature. Science will always be subject to such reversals. Its progress has been, and always will be,

a series of advances and retrogressions, with the outposts of knowledge steadily advancing. All this but emphasizes the supreme importance of organizing inquiry on a thoroughgoing basis, coupled with a judicious conservatism in the formulation of conclusions.

If, then, what we call science is a mixture of truth and error, of the enduring and the transient, by what standards shall we measure its reliability? You will agree with me, I am sure, when I state that wise critics estimate the value of scientific deductions by their authorship. When new conclusions are brought to our attention our first inquiry is for the name of the author, and three factors enter into our judgment of him and consequently of his work. These factors are, (1) his personal equipment for investigation, (2) his motives or point of view, and (3) his environment.

The primary consideration is the man. It is a fundamental fact which should receive greater emphasis, that what is presented to us for truth takes form in the human mind and the quality of what we are asked to believe bears a close relation to the development and equipment of the producing intellect. Unripe minds will inevitably produce unripe science, and while intellectual conquests are won of which we are proud and that bear ripened fruit, much so-called science is being forced upon our attention today that is as unripe and unassimilable as the proverbial green persimmon.

The man-side of research is emphasized at this time because, in my judgment, it is not sufficiently considered in our development and support of the work of inquiry. This development must begin with the preparation of men properly fitted to conduct research that is worthy of the name, and until this is accomplished other means, such as money, buildings, and apparatus, are inefficiently and wastefully applied. Material equipment is subsidiary to the intellectual. The normal and only successful order of procedure in this, as in every other effort, is first an

efficient instrument and then the means for utilizing it. Any other sequence is irrational and unsafe.

Again, an investigator in science should be judged by his controlling motives or point of view. It has been said, with what accuracy I do not know and shall not inquire, that an English university once wrote over its portals: "No useful knowledge taught here." One of our own scientists is absurdly reported to have expressed a regret that chemistry was ever put to money-making uses. Those of us who are devotees of applied science repel such sentiments and, having right on our side, declare with great fervor that we will have nothing to do with knowledge that cannot be brought into the service of humanity. We are glad that learning has escaped from the monastery into a throbbing, busy world. We have no sympathy, either, with the modern monastic spirit sometimes manifested by those who claim to be working in the field of what is designated as pure science and affect contempt for the utilitarian.

But, on the other hand, it is time for us to give practical recognition to the fact that great victories never have been won in science, and never will be, when knowledge is sought merely that it may be weighed in the balance as bullion. The investigator whose foremost thought is financial advantage, either to himself or to others, has an inferior point of view and is devoid of the highest inspirations. I know that some good people of an ultra-practical frame of mind take exception to the statement that the investigator should "seek truth for truth's sake," and declare that the controlling point of view should be that of utility. Granting that knowledge reaches its best estate when it serves human needs, it is still to be said that inquiry is not on safe ground unless the dominant impulse is to know the truth. The true scientific mind is the truth-loving, truth-seeking mind. He who possesses it is dominated by a desire for knowledge that leads him to sacrifice, if necessary, opportunities for power, distinction, wealth, or pleasure. In these days of money-making invention,

rather than of a desire for larger intellectual vision, when the imaginations of ambitious men are dazzled by the opportunities for financial gain, we need a renaissance of the spirit which inspired and upheld the fathers of science in the classic researches that have laid the foundations of modern knowledge. Until this comes in a greater measure than we now have it, we may not reasonably hope for the solution of many of the great unsolved problems of agriculture.

In the third place, research efforts take color and value from the environment in which they are carried on. No investigator is likely to be immune to the influences that surround him, and there are modifying conditions, the presence of which must be regarded as essential to the highest type of inquiry. If, as is obviously true, science is an individual product, the initiative and liberty of the individual should be safeguarded. The research worker must be allowed, within reasonable limits, to follow his inspirations and enthusiasms in his own way. Investigation that is too highly organized into a mechanical system, so that duties are assigned as in the routine of an administrative department, is infertile. It is a station worker's inspirations rather than his director's commands that are fruitful. Science that is worth anything will never be ground out by machinery, however costly and elaborate the mechanism may be. Neither should the investigating mind be subject to the coercion of public sentiment or the demands of expediency. Its operation should be carefully guarded in an atmosphere of quiet and unbiased reflection. This should also be an atmosphere of deliberation and not of haste. New knowledge that is reliable is reached with exceeding slowness for it is wrought out only by immense labor and with untiring patience. Perhaps what I have said concerning the authority of science may be summarized and made more specific by the statement that the knowledge most trustworthy is that which proceeds from the domain of conservative scholarship—such scholarship, if you please, as is bred in the atmosphere of

our best colleges and universities. Despite the dangers from academic dogmatism, it is in such surroundings that we now generally find the most critical and impartial judgments and the most careful deliberation in the formulation of conclusions.

The conditions essential to effective inquiry have been briefly outlined at this time in order that they may be compared with those under which agricultural research is undertaken in the United States. But before such a comparison is made, I would like to meet one thought that I suspect is already in your minds concerning what has been said. Doubtless your mental comment is that the specifications laid down are ideal and at present are unattainable by the institutions here represented. If this be true, then so much the worse for the prospects of scientific progress among us. When the temperature necessary for the hatching of eggs in an incubator is unattainable in a given instance, why, the eggs will not hatch. But I do not concede that there is anything extreme or impracticable in these specifications. They have existed, and they exist now, in some places and it is only where they are found that research is in its best estate.

In considering the present status of agricultural inquiry in the United States, we are impressed first of all by the great magnitude of the effort that, according to the language of the laws authorizing it, is known under a variety of terms such as "scientific investigation and experiment," "original researches," "diffusion of useful information," and similar phraseology. In 1906 the experiment stations expended nearly two million dollars. Assuming that of the seven million dollars appropriated to the United States Department of Agriculture, 60 per cent. was assigned to those bureaus engaged in the work of inquiry and demonstration, we find that in 1905–6 over six millions of dollars was applied by the federal and state governments to the promotion of agricultural science. This is outside the funds used by the land-grant colleges in the work of instruction. The number of persons now employed in the expenditure of this vast

sum of money is not less than four thousand. Millions of copies of bulletins and reports are now issued annually by the experiment stations, and the mass of literature sent out by the federal department is something prodigious. Department and station men are found frequently on the platform at agricultural conventions and farmers' institutes, and their contributions to agricultural literature in the way of books and newspaper discussion are extensive. History records no other instance of an organized attempt to aid agriculture or any other industry on a scale so magnificent in its proportions and so far-reaching in its results.

But in all candor it must be confessed that, whatever may have been the phraseology of law or of common speech in characterizing this movement, it has been mainly an effort, not of research, but of the exploitation of existing knowledge. We have not reached far into the unknown, and although important new truths have been brought to light, our efforts at inquiry have neither produced results nor commanded the respect of the scientific world to an extent commensurate with the generous means applied. During the past twenty-five years we have been busy instead with much agricultural speaking and writing. The chemist has been called from his crucible, the botanist from his microscope, the editor from his desk, and the farmer from his plow, to aid in spreading the gospel of an agriculture based on exact knowledge into almost every hamlet in the land. The unknown, but greatly inadequate, facts and principles of science have been exhibited with kaleidoscopic effects and have been turned inside out and upside down in order to meet conditions almost numberless in their variety.

Doubtless it may be argued in a way more or less convincing that the diffusion of existing knowledge was necessarily the first step in bringing the people in harmony with, and to the support of, the kind of educational and research work that is our goal. There is much to be said for this position, but we must not forget

that the largest asset of the priests of agriculture is their ignorance. Fifty years ago we began to import German science, and, with a due respect for a foreign product and because we didn't know any better, we accepted it all without modification or even *adulteration* as applicable to the agriculture of this new and rapidly developing nation. Some of us elder brethren remember with what confidence we advised the farmer as to rations for plants and animals, for had not the Herr Doctor *Namenlos* worked it all out and was he not authority? But since those days we have become one of the great powers and we now have a right to some things of our own, even our ignorance.

We are seeing with greater distinctness every year that the more complex and more important problems of agriculture are still unsolved, and that because of this our utterances to the practical man are still lame and halting. Do you doubt this statement and ask what these problems are? Who of us is able to stand on his feet and define fertility, or even demonstrate the relative value of its various factors? Do we not often quail before the simple and direct questions of the farmer when he seeks information as to the production of crops and sometimes return him answers bedecked with glittering generalities? We say much, and not too much, about the wonderful value of the legumes. Clover and alfalfa have been the most valuable asset of the institute speaker and yet we are in profound ignorance as to how much nitrogen they take from the atmosphere when they are grown under the ordinary conditions of farm practice. Once we had the German standard rations for farm animals and our *ex-cathedra* formulae were convenient and much admired. Now we have practically lost these standards in the misty mazes of new data and nutrition problems still harass our minds. Control of results in the breeding of plants and animals is still an unsolved riddle. (This statement should be made, I suppose, with an apology to the mathematical formulae of the disciples of Mendel.) Tuberculosis in farm animals is an unconquered

scourge. Do not say that there are no great agricultural problems left for us to attack. They are both great and many, and their successful study demands investigation of wide scope and masterful ability. We should not feel that because agricultural science deals with things common and familiar its problems are easy and may be solved by correspondingly easy methods. All that is required for progress in any other field of inquiry whatever in the way of efficiency of organization, scientific acumen, and severity of method is required here.

In repeating the assertion that we have failed to grapple with the large problems of agricultural science, as has been our privilege and opportunity, do not understand me as disparaging the results of your efforts. You and your predecessors have been engaged for the past thirty years in a noble enterprise which you have loyally sustained. It is a common remark from those who come in contact with this body for the first time that it is made up of men of unusually earnest endeavor, who are evidently seeking most conscientiously to do the work that they have in hand, and those who have frequented these meetings for many years know that such a comment is entirely just. Much has been accomplished. It is generally conceded that no instance is on record where technical knowledge has been brought into such close and practical touch with the people as has been done for our agriculture during the past twenty-five years. The comprehensive organization of the effort and the sympathetic relation of the various agencies involved, from the university to the home reading-course, are worthy of our admiration. The uplift of agricultural thought and practice has been great and has abundantly justified the new democracy of education. I am convinced, nevertheless, that, as was inevitable under new and untried conditions, some serious mistakes have been made in our attempts at research. But just now we are assuredly on the verge of substantial gain in the purposes and methods of our work and it may not be amiss to glance briefly at some of the

conditions, not yet entirely removed, that are inimical to scientific efficiency and progress.

The quality of work accomplished in agricultural science in the United States has been menaced, and still is, by the extraordinary growth of institutions for agricultural investigation. Comparatively few persons outside of those directly interested appreciate how remarkable this development has been. Up to 1887 there had been established in the United States only seventeen experiment stations, no one of which was receiving anything more than meager support. The passage, in 1887, of the Hatch Act, granting $15,000 to each state, or a total of upward of $600,000 for the maintenance of agricultural experiment stations, resulted in the prompt organization of twenty-nine more stations, making forty-six in all. This required the immediate employment by the Hatch stations of nearly four hundred men, a large part of whom had not previously been engaged in the work of inquiry. The number of stations is now fifty-five, which employ nearly eight hundred persons and expend annually nearly $2,000,000.

During this time the development of the United States Department of Agriculture has been even more remarkable. In 1888 the congressional appropriation to this department was $1,019,-219; in 1900, $3,006,022, and in 1907, $7,175,690. From June 30, 1897, to July 1, 1906, the number of employees of this department has increased from 2,043 to 6,242. It is approximately accurate to say that over 4,000 men employed by the Department of Agriculture and the experiment stations are giving their time to the work of research and demonstration, in the support of which between six and seven million dollars are annually expended. This marvelous development along one line of effort has taken place within the past twenty years.

Unquestionably the quality, if not the integrity, of scientific conclusions, has been endangered by this unprecedented enlargement of funds. In the first place, research efforts of a high type

are not made to order. They are an evolution that is by no means rapid. We say, and with truth, that age alone brings to a college the atmosphere most congenial to educational results of the highest value, and institutions of research develop and ripen no less slowly. Moreover, a large body of real investigators is not summoned in a day or in a year from among the mass of educated men. The real investigator must have what we speak of as initiative, fundamentally a natural quality that has been trained and developed in an atmosphere of scientific inquiry. Such men are not abundant. They are slowly gathered about any given center and their selection calls for the divining-rod rather than the dragnet.

Again, investigators in certain fields of agricultural research should be something more than mere technicians in science. They should be ripened men who see relations broadly, men who know affairs as well as principles. To be sure, agricultural problems relate to the common things of everyday life, but this in no way lessens their depth and complexity or the severity and thoroughness of the methods necessary to correct conclusions.

The difficulty, then, where endowments for research have increased by million-dollar steps, has been to secure a corresponding equipment of men with a genius for observation, who have ripened into usefulness, especially when we have so few institutions that are giving adequate training for scientific inquiry in agricultural directions. The fact is, funds applied to agricultural research have at times been increased so fast and on such a tremendous scale, though never beyond the needs of agriculture, as to exceed the possibilities of a normal and sound scientific growth correspondingly rapid and extensive. It is my judgment, which you may estimate as a purely personal point of view if you like, that agriculture has no right to ask for larger sums of public money to be used in the study of its problems until there are available more men who are adequately equipped for the

work of inquiry. In our enthusiasms we have proceeded, I am convinced, to create a condition that is out of balance. We should bring the situation into balance by giving more attention to the development of men.

Another condition, more or less unfortunate, is that agricultural research work is largely dependent upon annual legislative appropriations, either national or state. The legislative mind, for most excellent reasons, is peculiarly sensitive to popular sentiment. It also very generally holds the *quid pro quo* point of view. The query in legislative halls is quite naturally apt to be, not "What is truth?" but "What is truth worth in commercial units?" A closely related fact is that the agricultural public is not always patient or discriminating. Only investigators themselves understand the length of time and the persistent effort necessary to the formulation of sound conclusions, and because a constituency that has no adequate conception of what research involves complains to its representatives in the legislature that the appropriations for agricultural investigation are not producing equivalent values, the investigator is placed in a position of defending himself before a jury that does not understand him. The condition of expectancy that prevails on the part of the public that it must have results of immediate value to practice, and on the part of various institutions that they must have public support, has been an element most dangerous to the quality and integrity of our work.

As among the remaining factors related to agricultural investigation in the United States, permit me to refer briefly to the much discussed adjustment of teaching and investigation in its bearing upon the efficiency of our experiment stations. There is an unquestioned advantage to an experiment station, we all admit, in locating it in a college or university environment, provided the relations established are of the right sort. The college atmosphere is essentially speculative and is conducive to reflection and inquiry, or should be, and in a community of

teachers and students we generally find a desirable intellectual and social stimulus.

But the record of the past twenty-five years does not justify us in expecting a fruitful research effort when teaching of the kind and amount that must be done in most of our land-grant colleges is a part of the duty of members of a station staff. It is conceivable that giving a few lectures on advanced subjects might be a distinct advantage to a research worker, but this cannot reasonably be claimed for routine instruction in fundamental subjects. Observation shows that classroom work of this character will inevitably claim the first place in the use of the teacher's time and energy. It is useless to ignore the plain results of experience. The fact that this combination of duties seems for the most part to have been unavoidable in our experiment station organization may excuse the situation but does not nullify its effects.

It is of little avail, however, to dwell on the past, excepting as we glean the wisdom of experience. Our problems are with the future. As I see it, the further development of agricultural research in the United States lies primarily with the colleges and universities in the preparation of men and, secondarily, with the extent and conditions of the endowment of such research. Concerning this secondary factor, little will be said at this time beyond the remark that it will be fortunate when our research efforts shall be farther removed from the disturbing influences of an indiscriminating public sentiment and the uncertainties of legislation. We have no assurance that either education or research will develop normally or symmetrically if the purposes and methods of the classroom and laboratory are to be standardized by a public conception of what is their immediate vocational or commercial value.

The present fundamental need, however, is for more young men endowed with a love of learning, of scholarly habit, and with integrity of mind and heart, whose ambition is not for

notoriety but for the conquest of truth, and who, with more thought for service than for salary, are anxious to aid in laying broad and deep the foundations of human thought and activity. For this reason, in the progress of agricultural knowledge, I place the influence of the teaching institutions as the primary factor, because, when there exists a body of men really possessed by the research impulse and with adequate training, inquiry will not wait on legislative authority and support, but will proceed even under adverse circumstances. Whether the land-grant colleges are to train such men sufficient in numbers and ability to meet the demand is yet to be determined. So far these institutions have appealed for public support, chiefly on the ground of educating farmers, and have pointed to farmer graduates and crowded short winter courses as a sure way of convincing the popular mind that public funds are successfully applied to the supposedly chiefest aim of agricultural education and are not being exhausted in the labyrinths of learning characterized as useless.

It is a serious question whether we are right in our educational plans when we place almost the entire emphasis upon the commercial or business side of agriculture and the industries, or whether in doing this we are promoting the highest utility of agricultural and industrial education. Is it not now the privilege and duty of at least some of the colleges and universities here represented more fully to nourish and develop the spirit of inquiry? Should you not deliberately set about recognizing and encouraging scientific initiative among your students and organizing courses of instruction that shall give a substantial preparation for the work of investigation?

A New England college president, having in mind, doubtless, the older institutions of learning, once expressed the half-formed conviction that "the college is farther from the market-place than is the church." It was evidently his thought that in the college, as

nowhere else, are nourished and cherished the highest intellectual and moral ideas.

But here are institutions with new purposes and new relations. On their doorposts is written the word "practical," and in their classrooms the student is asked to consider the vocational side of life and he learns of machinery and slaughter-houses and railroads and markets; in short, he learns of all that man is doing, rather than of what man is thinking and dreaming and hoping. Is the future investigator with his imagination fired by ambitions for larger knowledge to come out of such an environment? We may well be solicitous whether the spirit of learning can survive in centers of thought where facts and principles are so constantly weighed and measured with reference to their material or commercial value. It is a serious matter if the new education that is now attracting to it thousands of our young men is to serve chiefly in commercializing, rather than intellectualizing, the most virile manhood of a nation that is already grossly materialistic.

Friends and fellow-workers, these problems are your problems. Now that an apparent transition in the aims and methods of education is in progress, the institutions you represent, founded as they are upon the broadest possible basis of educational function and leading as they do an invasion into new and untried fields, occupy a position of critical responsibility. May you possess such wisdom, and such initiative tempered by the lessons of experience, that your efforts will advance the intelligence and prosperity of the farm and shop, promote the love of learning, and uphold the standards of the scholar.

ALUMNI DAY EXERCISES

THURSDAY

THE ALUMNI BUSINESS MEETINGS

The preponderance of the old alumni, in influence at least, came out clearly in the subjects which absorbed the interest of both the forenoon and afternoon session of the Association. Easily foremost of these subjects was the preservation of old "College Hall." The rumor had circulated that this building was to be removed to make way for a new one, and earnest protests were voiced from all sides.

It is not difficult to understand the affection of the old graduate for this building when we remember that until the middle 80's it was by far the most important building upon the campus. It contained the offices of the secretary and the president, and the library, chapel, and Young Men's Christian Association rooms were within it, as well as society and fraternity rooms, in addition to its designed use as a place for laboratories and classrooms. The building having been so largely the center of the old graduates' interest, the frequent expression that it was the "one landmark which reminded the early student and graduate of the early days at the college" was well within bounds. The resolution which a special committee reported, asking the state Board of Agriculture to retain this landmark, was therefore unanimously adopted.

The "Alumni Advisory Council" was easily the topic of second interest to the members of the Association. The institution of this new college body has been somewhat belated, the idea having had its beginning fully ten years ago. The resolution of the State Board of Agriculture inviting the establishment of this council shows the designed sphere of the council and is as follows:

RESOLUTIONS

Resolved, That it is the unanimous belief of the members of this board that the continued prosperity and growth of this College will, of necessity,

be largely dependent upon the loyal and practical support given it by the alumni; and that the best means of securing such support is to bring about a feeling of earnest and active co-operation between the state board and faculty, and the alumni. Be it further

Resolved, That in accordance with the spirit manifested in the foregoing resolution, the State Board of Agriculture hereby suggests and recommends that at the business meeting of the alumni, to be held at the College on June 17, there be elected from the alumni an advisory council of six members, whose duty it shall be to confer together from time to time upon the general welfare of the institution. And finally, Be it

Resolved by this board in regular session, that we hereby extend to such advisory council, as soon as it shall be organized, an invitation to meet with us, at least once each year, and as much oftener as said council shall consider desirable, for the purpose of mutual conference upon all matters pertaining to the work of the College.

This ten-year-old invitation from the board was heartily accepted by the Alumni Association and directions were voted as to the method by which the new council should be constituted. Prolonged tardiness on the part of the alumni in creating this new board may prove indeed quite other than ominous to its future usefulness. The celerity with which the first council, consisting of R. S. Baker 1889, Eugene Davenport 1878, William Prudden 1878, George J. Jenks 1889, E. N. Pagleson 1889, and L. W. Watkins 1893, has organized for its purposes fairly atones for the delay.

Subordinate in the interest which they aroused but scarcely so in importance were the additional topics which aroused discussion. Chief among them were the desirability of a permanent alumni secretary to be designated by the Board of Agriculture, the preparation of a history of the College through the authority of the Board of Agriculture, and the appointment of a memorial fund committee by the Advisory Council, all of which were recommended by the Alumni Association.

A review of the proceedings of these notable meetings may close perhaps in no better way than with the final resolution proposed by the committee on resolutions and adopted by the association:

That the alumni congratulate the people of the state that the institution has closed so long a period of honorable history. We all earnestly hope and believe that, while encouraging all forms of healthy activity, from the athletic field to the forum of practical affairs, the influence of the Michigan Agricultural College will always be for the highest attainable scholarship, upon which alone the enduring reputation of the institution may rest.

The alumni officers for the ensuing triennial period are:

EXECUTIVE

Judge W. L. Carpenter 1875, *President*
Professor P. M. Chamberlain 1888, *Vice-President*
Professor W. O. Hedrick 1891, *Secretary-Treasurer*

LITERARY

Hon. C. W. Garfield 1870, *Orator*
Mrs. Katherine C. Briggs 1893, *Poet*
Mr. G. L. Stewart 1895, *Historian*
Mr. S. B. Lilly 1907, *Necrologist*

ALUMNI LUNCHEON

Thursday Noon

One of the most pleasant events of the week, as far as the alumni were concerned, was the luncheon served in the big tent on Thursday at noon to about 1,200 of the alumni and old students. Nothing elaborate in a menu was attempted, and yet an abundance of things good to eat was served. It was not eatables themselves, however, that made the luncheon such a decided success. The fact that 1,200 former college students and chums were eating together, grouped in classes, talking, joking, singing, and in these various ways living over again the good old college days in one great family picnic, was what made this feature of the program such an overwhelming success.

On entering the tent alumni were informed: "Classes are numbered," and members of each class found a placard conspicuously planted as a rallying-center for them. In this way with ease and without the slightest confusion the old students were placed in an atmosphere entirely congenial and among old classmates, some of whom had not been seen since the college days. Many long-time mysteries were cleared up, and the missing links in many college romances were forged into the chain. The folly of serving beer in a dormitory was one of the topics of discussion in the 1883 camp, and 1884 was still chuckling over the way they put 1883 in the hole on the faculty investigation over Knapper's buggy. Tallman's pear-swiping expedition was brought to light by 1895, and "How a Lamb Was Led to (the) Drink" was under discussion in the camp of 1898. What became of the college bell will be revealed in 1957, along with other mysteries that develop and become the life-history of the institution, and are of necessity milestones in the lives of the student population.

The paper napkins with the likeness of Dr. Beal, the surviving member of "the Old Guard," are treasures, and the menu booklet with its reminders of dear old Dr. Kedzie and of the college presidents was a pleasing feature of the occasion and is a valuable souvenir of the jolly, rollicking days that have passed into history, days in the institution which we all love.

How many of us will meet again on the old campus at the next milestone? Assuredly not all and mayhap not many; but, old or young, let us all resolve firmly that "some time we'll wander back again."

ALUMNI LITERARY EXERCISES

THURSDAY AFTERNOON

THE ALUMNUS AS A CITIZEN

RUSSELL ALLEN CLARK, 1876

In speaking of the alumnus as a citizen, one must accord to him a plane above that occupied by the average citizen, or by the community as a whole. I think the correctness of this assertion needs no demonstration.

Every alumnus has incurred a debt of gratitude to his Alma Mater, which has looked after his needs, heeded his peculiarities, expanded his special facultics, rounded out his nature, and made him a cultured, self-poised, resourceful citizen.

His first duty, therefore, is to repay that debt of gratitude to his Alma Mater. I fancy if we should ever attempt to compute the cost to this commonwealth in providing each of us with our diploma, that we would be amazed at the magnitude of the figures.

While this seems like a great burst of philanthropy on the part of the commonwealth, yet it is largely a selfish movement on its part, as it makes this investment with an eye single to the fact that such an investment will raise the standard of citizenship as a whole, and thereby decrease the expense of policing the state, decrease the number of penal and pauper institutions, increase the value and productiveness of each man's labor, and add to the safety and security of human life, and to the joy and pleasure of living.

If each alumnus is true to the obligations thus imposed on him, he will undertake earnestly and faithfully, to repay his debt to his Alma Mater.

The most efficient way of doing so, is to make himself worthy of the institution whose name he bears, by adopting a high moral standard of living that will reflect credit upon his Alma Mater,

and be an influence for good in his community, as well as by manifesting a spirit of loyalty and devotion that will prompt him to sing its praises at all times and on all occasions. If each alumnus present takes heed of this latter suggestion, a new dormitory will be required to house the inflow of new students at the opening of the college year.

Another debt of my alumnus citizen, equal in importance to the one he owes his Alma Mater, is his debt to society. The higher plane accorded him in the community brings with it corresponding burdens and obligations. The declaration that of him that hath much, much is required, applies to the alumnus with peculiar force. Society demands that an educated man be a leader of broader thought and higher morals, and it is a responsibility that he cannot well escape.

An educated man has no business to conduct himself in a manner that will detract from the public morals, whether it be laboring on the Sabbath day, using profane and vulgar language, or spitting on the sidewalk.

"If meat maketh my brother to offend, I will eat no meat, so long as I shall live," is just as good ethics today, as when it was the rule of conduct of that great teacher and moralist of 1900 years ago.

Such is the spirit of kindly consideration and love of kind, that I would have manifested by my alumnus citizen; and yet I would not advocate a spirit of meekness of the Uriah Heep variety, if you please, but the spirit of meekness manifested by Jesus when he took little children in his arms and blessed them, and the spirit of righteous indignation manifested by him, when he scourged the money changers from the Temple.

Another debt imposed upon my alumnus citizen, and one quite as important as the others, is his duty to his country. It is in the discharge of this duty that the educated man bestows upon his fellow-citizens and upon the state that educated him the greatest benefit of his intellectual training.

I used often to recite at our rhetorical exercises a selection of Orville Dewey's, entitled "Liberty." I appreciated it then for its high-sounding phrases, and still more because it saved me the trouble of committing a new selection, but I am going to repeat a portion of it again today, because I now appreciate it foı its plain statement of our present national needs, and for its spirit of patriotism. He says in the opening sentence:

> Liberty, gentlemen, is a solemn thing, a welcome, a joyous, a glorious thing, if you please, but it is a solemn thing. The subjects of a despot may be reckless and gay, if they can, but a free people must be a thoughtful people, for it has to do the *greatest thing that ever was done in the world—to govern itself!*

Emerson says, "Society is the lengthened shadow of one man." If society, then the state, and you, then, are the state, and to you we are to look for the proper administration of its affairs. Your ancestors, after long years of hardship, suffering, and bloodshed, created an infant republic, which was brought to them by an eagle instead of a stork, and under their fostering care it has grown to be a giant in the community of nations. For its proper guidance and control they formulated the *most wonderful document ever created by the mind of man.*

This is the splendid heritage that your illustrious ancestors have handed down to you; and the question of the hour is, What are you going to do with it, my brethren?

Did you ever notice a field of wheat on a June day, as it was kissed by the sun, and fanned by the gentle summer breeze, or frowned upon by threatening clouds, and lashed by the gale that precedes the thunder storm? And did you notice the heads of rye, that here and there towered above the wheat; and that whether it was the summer breeze that gently swayed the mass of wheat, or whether it was lashed to violent motion by the angry gale, the heads of rye stood erect, unmoved, and seemed to look with calmness and compassion upon their lowly brothers, but wholly unmoved by the influences that disturbed their neighbors?

My brethren, the rye in the wheat field typifies your position among the masses, in the political field. If this republic is to be perpetuated, and it will be, it will be accomplished by your zeal and splendid patriotism, as well as by that of your brothers of kindred institutions, who, whenever a great crisis arises in human affairs, will bring to it disciplined minds, a high standard of moral honor, a broad altruistic spirit, and a calm, dispassionate outlook upon the whole problem, that will enable you to decide it in the interests of the greatest good to the greatest number. And having so decided it you will be able to influence the masses for their own, and their country's good; for from the skyline of history, to the present day, the minority has always beaten the majority in the end, when the issue was a moral problem.

There are undisciplined minds in every community, who assert, with a good deal of gusto, that the spirit of this age is that of the classes against the masses, and that there is one law for the capitalist and another for the laborer. Now, while this is the marshmallow age of fiction, yet exactly the opposite of that is true in the administration of governmental law and order.

It is a long way from Mount Sinai to America, but the thundering voice of *thou shalt not*, speaks in louder tones today than when uttered on Mount Sinai, just as our civilization is higher than the age in which it was first uttered.

My brethren, into your hands is given the keeping of the Ark of Liberty, and for its sacred care and protection, you shall answer to posterity.

The greatest debt of my alumnus citizen is the one he owes to himself.

If there is any message more than another that I would bring to you, it is to *live your life*. Do not expiate it, do not creep, or crawl, or apologize for living; but stand up, proud in your conscious manhood, facing the world courageously, and bearing the imprint of the Godlike spirit within you. Make your life its own excuse for being!

The man who looks the world squarely in the face, who is afraid of no man, and of whom no man is afraid, views the world from the mountain tops, as did the gods on Mount Olympus.

Perhaps some of my younger brethren, who, like myself, took their postgraduate course in the College of Hard Knocks, have often asked themselves the question, "Is it worth while to make a living?"

No, most emphatically, no! It is not worth while to make a living; but I tell you, it is worth while to make a life. Why, making a living is the lowest ambition that ever entered the breast of man. Everything that lives and breathes, from the mountainous elephant to the coral insect, makes a living!

Cassie Chadwick made a living, but Frances Willard made a life!

The courageous man, and the resourceful man is one who builds a temple of success on a foundation made of his failures! Do you say that I have pictured an ideal life, and one that could be lived only in Utopia? Perhaps so; but don't you know, my brethren, that we are all traveling toward the beautiful City of our Ideals, and while we know perfectly well that we shall never reach it, yet dwelling in the suburbs is very delightful.

To my youngest brethren, who will receive the right hand of fellowship and be taken into full communion on the morrow, I want to extend my congratulations, and my condolence: Congratulations, on your having received such a splendid training at the hands of this great commonwealth of Michigan, my Michigan, on which it has set its great seal, in joyous approval; condolence, at your handicap in entering the race of life; for any young man living four years under the fostering care of his chosen college develops certain false notions of life, one of which is that the world must certainly recognize and cater to—a college degree!

I recall, very distinctly, my inclination to carry a club and

whack every plebeian head that failed to show me the deference to which I felt a college man was entitled.

Another of these false notions is the mistaken idea that a college degree and a permanent income are synonymous terms.

Another is the feeling of discouragement you will experience when you return to your respective homes, and find that the boys you left behind on the farms have farms of their own, and the boys who drove delivery wagons have stores and warehouses of their own.

The advantage you have over the boys who stayed at home and gained dollars, while you gained knowledge, is that they have reached their limitations, while the educated man "trains on," and his development here is his academic training for the larger life beyond.

Whatever the fates may have in store for you, rest assured there is always vouchsafed to you God's greatest blessing to man—the blessing of work! Love, laughter, and work! *Oh, blessed trinity of man's existence!*

A gentlemen recently wrote the Carnegie Steel Company in behalf of a young friend who had just completed a course at Princeton; he closed his letter by saying he felt certain his young friend would give them entire satisfaction, as he was a very sharp young man.

The officer to whom the letter was referred returned it with a memorandum across the bottom of the letter, saying, "The Carnegie Steel Co. has no place for sharp men; what the company needs is broad men sharpened to a point."

He that hath ears to hear, let him hear.

If I were asked my personal viewpoint of life, I could best express it in a beautiful prayer of Max Ehrman, in which he says:

> Let me do my work each day; and if the
> Darkened hours of despair overcome me,
> May I not forget the strength that comforted me

In the desolation of other times. May I
Still remember the bright hours that found me
Walking over the silent hills of my childhood,
Or dreaming on the margin of the quiet river
When a light glowed within me
And I promised my early God to have
Courage amid the tempests of the changing years.
Spare me from the bitterness and sharp passion
Of unguarded moments. May I not forget
That poverty and riches are of the spirit.

Though the world knows me not,
May my thought and actions be such
As shall keep me friendly with myself.
Lift my eyes from the earth and let me
Not forget the uses of the stars.
Forbid that I should judge others, lest I condemn myself.
Let me not feel the glamour of the world,
But walk calmly in my path. Give me
A few friends who will love me for what I am;
And keep ever burning before my vagrant steps
The kindly light of hope; and though
Age and infirmity overtake me, and I
Come not within sight of the castle of my dreams,
Teach me still to be thankful for life,
And for time's olden moments that are
Good and sweet; and may the evening twilight
Find me gentle, still.

INSULATED WEALTH

RAY STANNARD BAKER, 1889

I have two or three things I should like to talk about here today—some things I have been turning over in my mind for a long time, things I am especially glad to have the opportunity of saying at a jubilee gathering like this, the real object of which is to survey the accomplishment during half a century of a new kind of education.

Not long ago I was talking with one of the foremost charity organizers of New York City a man who spends a great many thousands of dollars every year in advancing various good causes. I asked him if he did not find difficulty in raising the immense sums of money required by his activities. His answer somewhat surprised me. "Of course," he said, "but the chief difficulty is not in raising money but in knowing how to spend it wisely." He called attention to the immense benefactions of Rockefeiler, and Mrs. Russel Sage; he said that Carnegie was finding it a harder task to give away his fortune wisely than it had been to make it. He told me of a rich man who had worked for months devising a method of expending $250,000 for a certain benevolence, so that in the end the money would not do more harm than good.

My friend was talking of charity, but his remarks, it seemed to me, applied more widely to the activities of our modern American life. It is popular at this moment to execrate our richest men, our Rockefellers and Carnegies; but after all, are they not a pretty fair representation of us as a people?

Broadly speaking, we Americans have learned how to pile up wealth, but we fail in knowing how to use it wisely.

In the last seventy years we have learned to apply machinery

to the development of nature's resources. I do not need to describe here how machinery has revolutionized agricultural industry and transportation. Our grandfathers could not have imagined the crops of dollars which by means of machinery we now gather from our fields and mines. The country has become literally intoxicated with the possibilities of speedy fortune-making. We have come dangerously near, as a people, to honor men not for wisdom or goodness but according to their ability in accumulating dollars. For how long have we held up as a hero to our schoolboys the man who, beginning with nothing, has made his way upward—to what? Why, to money, loads of money! We have worshiped the "self-made man," the "captain of industry." The chief activity of our educational system has been to produce wealth-makers. What does the word "success" commonly mean as it is applied today? Success means the ability to make money, to own a fine house, to ride in an automobile, to give a good dinner!

Our life, every phase of it, shows our great capacity for making money—our failure to spend it wisely. What an example is presented by the rich American who, having accumulated a fortune in a few years, is running about the world trying to buy excitement.

Having had no training except as a money-maker, no intellectual resources beyond that, no knowledge of how money may be made really useful to himself or to society, he cuts, indeed, a pathetic figure! One of the things he does first is to build and furnish a huge house in which he does not know how to live. One such palace has just been completed at the cost of millions of dollars in New York City by a rich man who is also a United States senator—by purchase. It is visited by foreigners as a pattern of American vulgarity and crudity. Millions of dollars are expended every year in wasteful eating, drinking, and dressing by people who know how to make money, but who do not know how to use it. Visit any of our cities and you will find

that the popular temples of worship are not the churches but the eating and drinking-places, the mighty temples where expensive raiment and jewelry may be purchased. Our newspapers treat us daily to the scandals, divorces, and crimes of men and women who have more money than they know how to use—except in that senseless and selfish material luxury which breeds immorality. And this is not confined to the obvious examples of the great millionaires whose doings are reported in the daily journals, but the same rule applies in the small cities and even in country neighborhoods. How many times have we seen men ruined by the wealth they had worked so hard to win—because they never learned how to use it wisely.

Our public activities show the same conditions. No states or cities in the world are able to raise such vast sums as ours. Our country is very rich. Almost unlimited amounts of money can be obtained for public purposes. But how do we spend it? Let the stories of graft and political corruption told in the last few years answer that question. Our governments, whether state or city, have not learned how to use their money wisely any more than those who inhabit them. The state of Pennsylvania has just finished a gorgeous new capital building costing millions upon millions of dollars. The money was easily raised, for Pennsylvania is a wealthy state; but we are just now finding out that those who supervised the expenditure of the money wasted or stole over one-third of the amount appropriated. A city is cursed with bad pavements as in Chicago; corrupt police service as in New York, which not only allows but encourages crime; or with a water-system like that of Scranton, Pennsylvania, which, instead of improving the health of the people with pure water, actually spreads typhoid fever; and these things do not exist because there is not plenty of money to build good pavements and supply good water but because the city administration does not know how to spend the money it has. For a government, after all, is just like the people who make it. We

can't expect public servants who know how to use money wisely and honestly when we as a people use our money wastefully and selfishly. In short, we Americans have overtrained the faculties which produce wealth; we have sadly undertrained the faculties which use it.

But we are beginning to recognize this national weakness. We are beginning to pay less honor to the mere "captain of industry." We inquire not how much cash a man has, but how he made it, and how he is using it. Every day we are looking more sharply to the "swollen fortune," and demanding that the possessor of it give an account of himself to the public. Rockefeller and Harriman have become, in spite of their wealth, the most execrated of our citizens. We even hear discussion as to whether or not a community should accept a library given by Carnegie, or whether a college can safely take Rockefeller's so-called "tainted money." When we come to think of it, does not that show a most remarkable change in public sentiment? In other words, the proper use of money, as well as the production of it, is being more widely discussed.

So unusual is the capacity today for knowing how to spend money wisely that the man who possesses it cannot only obtain all the money he wants, but is in a fair way to become famous. You all know the story of the unknown New York reporter, who had a plan for spending millions of dollars in playgrounds and parks for the East Side poor. It appeared to be a scheme of impossible magnitude, but Jacob A. Riis not only succeeded in getting the money, but won a country-wide fame because he knew how to spend it. A negro boy who had been a slave—Booker T. Washington—has asked for $2,000,000 to build a school—and has got it, because he had a wise way to use it. After the San Francisco earthquake the country poured out millions of dollars to help the sufferers. It was no trouble to get money; but when I was in San Francisco last September, I saw what a gigantic task it was to use it properly. Much of it

was wasted, not because the administrators were dishonest, but because they did not know how to spend it.

It is a great thing to teach a boy, as he is taught in the engineering department of this College, the art of producing electricity—producing it cheaply and in large amounts. Having taught him that, we should regard it as a strange sort of education that did not also train him with equal care in the methods of controlling such a dangerous agency to the use of man. For, turned loose over broken or uninsulated wires, the more electricity, the more ruin. Wealth is exactly like that. We have learned to produce it with immense facility in hitherto unequaled amounts; but we have sadly failed in that insulation, that control, which harnesses a powerful and dangerous agency to the use of man. We are the victims today of what may be called uninsulated wealth. Wealth used properly is our servant; used improperly, our master.

The greatest need today in our American life is the expert money-user—men who know how to use money wisely for themselves or for the public good. And they are hard to find! Let me call your attention to two or three significant things. One of the greatest beneficences of recent years was that of Mr. Carnegie when he founded the Carnegie Institution. What is the purpose of the millions of dollars at the disposal of the directors of that fund? Why, to find men who have ideas of how to spend money wisely—and having found them, to give them the money they require to work out their plans. The essential question that they ask is this: "Can you spend money so that it will help the human race?"—and if they are satisfied that a man can do it, all the resources of the institution are placed behind him.

And just recently, as you all know, Mrs. Russell Sage has given a vast fund of money, $10,000,000, which is to be used, not to relieve poverty, not for education, but in finding out how money can best be expended in helping the poor.

Think of giving $10,000,000 to find out new ways of spending money! It shows, does it not, how clearly the great possessors of money like Carnegie and Mrs. Sage appreciate the problems of using wealth with wisdom. And they, of all people, having unlimited millions in their control, ought to know!

I come now to the application of what I have to say. Gentlemen, we are not farmers, or professional men, or business men, merely to *make* money; we have also a great responsibility in using it. If we teach our boys that the only object in life is cash, we shall expect them to produce nothing but cash—and afterward waste it, or use it to their own ruin. In a new country perhaps it was inevitable that the main emphasis should be placed upon wealth production. But we are no longer new; and we are very rich. Is it not time in our educational system, and in our home-training, to give more emphasis to the proper use of wealth? Is it not too common to consider an education as a mere business proposition; so much book-learning invested with an idea that it will produce, in ten, twenty, or forty years, so much cash?

What, then, do we need in our schools and colleges that we have not got?

We need two different things. In the first place the individual man must be trained not only in money-making, but he must be given knowledge of how money should be used in something besides fine houses, fine clothes, and wasteful eating and drinking. There must be training in how to get the best things out of life—in literature, art, music, travel. Unless surplus wealth widens our opportunities for development and happiness along these higher lines, of what real use is it to anyone? There is a danger, in schools devoted wholly to technical or industrial education, which train men for money-making, that the other side of life should be forgotten.

But however much we need to know how to spend money wisely for ourselves, there is even a greater necessity for proper

training in the methods of using it wisely for public purposes. The importance of that education in a time like the present, in which questions of vast national concern are crowding for attention, cannot be overemphasized. We need in our colleges a broader and more careful training of boys and girls in what may be called the human sciences. I speak of them here as human sciences. They have been for the most part treated in a way inhumanly dull, impossibly forbidding. I mean the science of sociology, economics, political economy—those subjects which treat of the relationships of men and the duties and responsibilities which grow out of them. In most schools these subjects, which are in many ways more important to the citizens of a democracy than anything else, are commonly neglected. We produce excellent farmers, doctors, lawyers, chemists, engineers, and we train each of them to make money from his calling, but we fail dismally in training our boys and girls for citizenship. We make little or no attempt to develop that social sympathy and responsibility upon which, after all, every free government must rest.

I was greatly impressed yesterday with Dr. Bessey's address on the old methods of science teaching, in which the student learned of nature, not from nature, but out of books. When he studied botany he studied only to know the names of plants, not the plants themselves. That is exactly the stage, today, which our teaching of citizenship, of social responsibility, has reached. I tell you, if we would govern ourselves wisely, we must first learn to do it. We must teach it not merely out of books but out of life. The great contribution of the Michigan Agricultural College to education, it seems to me, has been the inspiration it has given to the study of life direct, the widening of the laboratory system of education. Now, what we need today in the teaching of economics and sociology is the laboratory method. I can only throw out a few suggestions here, trusting that they may not, among so many educators, be lost. If I had

a class in sociology I should not begin by considering the structure of the human family, the departments of government—the whole universe of history which can be had only in books. I should do exactly what you botanists and chemists do when you hand your class a real plant or a bit of actual earth to work upon. I should say to my class: In front of the schoolhouse you will find a hole in the pavement. Go out and study it; find out exactly what it means. And I'd have a report on that hole, and before I got through with it, I warrant you, my class would know more about the alderman and the mayor and the political boss than most voters you and I are acquainted with. And if I had a class in economics, do you know what I'd do? I'd give them specimens to work on, too. I'd bring in a new shoe and cut open the sole. I'd show them that while it was sold at a high price as solid leather, in reality it was half paper. I'd set that class at work on the shoe and keep them at it until they knew the whys and wherefores of the fraud.

Under present conditions, even when educated men are called upon to serve as public officers, or to vote for public officers, or to spend the public money, they do not know how to go about it. The result is that the government of our cities too often falls into the hands of inefficient or corrupt men, who waste or steal the wealth with which the public intrusts them. Is it not astonishing, when we come to think of it coldly, as a fact, that while we cunningly train our engineers, our lawyers, and our farmers, we are willing, in many instances, to take untrained men, even saloon-keepers, ward-heelers, and criminals, and place them over us as our officers, our governors, legislators, mayors, and give into their control all of the vast sums of public money? Think of it! I wonder what a visitor from Mars, coming down here to study our institutions, would say about such a system. We might expect him to write to his home paper, something to this effect:

"They educate everybody in this country called America:

they have wonderful schools for lawyers, doctors, engineers, farmers, but strangely enough, they do not think of educating their rulers. Everybody is taught to work for himself; nobody is taught to work for the public good. They try to govern themselves without learning how to govern. They raise immense sums of money for improving their cities, but much of it is wasted or stolen because the rulers they elect are ignorant. It is a strange and childish people!"

But I think we are coming to the time when we shall recognize the needs in our schools of a proper training in citizenship. I wish, at this great celebration, when our minds are turned to the subject of education and educational methods, that we might bear this matter in mind; remembering that our nation cannot live unless men are in some way trained in the knowledge of those social relationships and awakened to that social sympathy which lies at the foundation of democracy.

We need to know how to produce wealth. That art is already pre-eminently ours; but we also need more and more to know how the great power of wealth may come, by proper insulation, to illuminate, not to destroy our lives.

TO OLD M. A. C.

MRS. PEARL KEDZIE PLANT, 1898

Now thy children here assemble
For thy glorious jubilee;
Thy stately halls and campus fair
Tell thy prosperity.
Full fifty years of service
Thou hast rendered to our land,
And the triumph of the labors
We proclaim on every hand.

Chorus—

To old M. A. C. we'll sing,
And we'll make the echoes ring;
Loyal hearts and hands we bring
To this jubilee.
So with spirits free and gay,
We will our homage pay,
On this grand Alumni Day,
To old M. A. C.!

There are many well-known faces,
Some there are we see no more,—
Ah! the years have gone by swiftly
Since our college days were o'er.
Now we come again as ever
On this campus green and fair,
And clasp the hands of schoolmates
And bid good-bye to care.

Chorus—

Our hearts are full to bursting
With the love we hold to thee,
Our dear old Alma Mater,
Our grand old M. A. C.!

Now we meet to do thee honor,
  And to own our boundless debt
For thy fostering care and precepts,
  "Lest we forget,—forget."

Chorus—

We are proud to be thy children,
  Proud of thy great work and fame,
Proud of noble men and women,
  Who have labored in thy name.
And whate'er of riches, fame, or power
  We bring, as here we meet,—
We gladly and most proudly
  Lay all down at thy feet.

Chorus—

Fifty years! A half a century
  By the cycle of the stars;
Fifty years of upward striving
  And the path no failure mars.
Of thy progress through the decades,
  Men with wonder hear the tale;
Now we hail thee in this triumph,
  Our Alma Mater, hail!

Chorus—

SKETCHES BY THE HISTORIAN

CHARLES JAY MONROE, 1861

Mr. President and Brother Alumni:

But for the thoughtful reminder of President Clark not long ago, the program would probably have been my notice that I was to be the historian, for, if I had known of the election, it had escaped me.

After considerable thought about the alumni, widely scattered over this country and many parts of the world, and of the large number holding honorable and responsible positions in similar institutions or in allied work, I concluded after much worry and consideration to throw the material aside and give a brief talk about our Alma Mater, feeling that on this the fiftieth anniversary of the College, when we expected a large number to return to it, many, after years of absence, would be glad to have their memories refreshed by recalling very briefly the history of the inception, organization, dedication, growth, and some of the work of this College.

The College was pre-eminently a pioneer, created by pioneers of Michigan, and it has been a leading pioneer in nearly everything pertaining to its organization, building, administration, plans of work, and courses of study.

Its existence, like the university, normal, and common schools, finds its warrant, if it needs any, in the ever-memorable ordinance of 1787 where the need of knowledge is tersely stated and the command to encourage it is definitely given.

Michigan has intelligently and liberally heeded that command. Its second territorial governor, General Cass, who held the office from October 29, 1813, to August 1, 1831, when he resigned to fill President Jackson's appointment as secretary of

war, was active and enthusiastic in promoting agriculture, as evidenced by his being chosen by the State Agricultural Society (whose officials were familiar with his interests in agriculture) to deliver the address at its third annual fair, in 1857. In 1850 he addressed the Kalamazoo County Society, and others might be mentioned. These addresses would be worthy of repetition whenever or wherever agricultural interest or education was being considered. In 1817 when the first act to establish a university was adopted by the governor and judges of the Territory of Michigan, providing for thirteen professorships, the purpose of at least three of them and the provision for botanic gardens and laboratories indicated the desire and intention to provide for instruction in agriculture.

The first constitution of the state was framed by a convention in 1835 and provided, among other things, that "the legislature shall encourage by all suitable means the promotion of intellectual, scientific, and agricultural improvement."

Stephen T. Mason, who practically acted as governor from Cass's resignation, August 1, 1831, until he was elected and qualified as governor, January 1, 1838, had become thoroughly imbued with a sense of the importance of agriculture to the growth and development of the state; so, in his first message in January, 1838, he declared in substance that the real prosperity of the state is most dependent upon the cultivation of the soil, that whatever encouragement is secured for the agricultural interest extends a benefit to other departments of industry. Agriculture being a primary and most important branch of state economy, it is the duty of the legislature not only to protect its members from disproportionate burdens, but to facilitate to them the advantages derived from the researches of science and the discoveries and improvements of the age. With this object in view he recommended the creation of a board or society, to foster and encourage this great source of national prosperity and independence, to gather desirable information, and at the

public expense to distribute it to the farmers of the state. A year later, he again called the attention of the legislature to this subject, saying:

The agricultural interest is one of great importance and claims with justice the protection of the government, and yet it has received less aid from direct legislation, than any other department of industry. But I feel that when it is recollected how essentially the real prosperity of Michigan depends upon the cultivation of her soil and the labor of her husbandmen, the subject will receive your earnest consideration and favorable action.

From the widespread interest at this time, and the activity of influential men throughout the state, and particularly at Detroit, I believe the feeling is warranted that but for the speculation and "wild-cat money" resulting in the panic of 1837, Michigan would have had an agricultural school or college starting with the new state. Probably because of the disorganizing and depressing influences following the panic, little was said or done for some years; at least I have found little of public record, although the need of better educational facilities for the farmer continued to be a feature of the address at state and county fairs and in articles written for the press, and the interest was kept alive.

In March, 1849, while the legislature was in session, some sixty members issued a call for a meeting to organize an agricultural society. An act to incorporate was approved on April 2. Most of those who had been active in promoting the agricultural interests and education of the state, with others, became members and organized the State Agricultural Society.

Governor Ransom was elected president and J. C. Holmes, who had persistently worked for its organization, was naturally chosen secretary. It held a fair at Detroit in the fall of that year, and E. H. Lothrop, a farmer living at Galesburg, delivered the address. I will quote only a single paragraph of the many good things he had to say:

While our people and our government, both state and national, are truly liberal and pour out their money like water in the establishment of

literary and other public institutions, and dot our lands with theological seminaries, with medical seminaries, and with military seminaries, poor agriculture, whose hand sows the seed and whose arm gathers the harvest on which all our earthly comforts, and even our very existence depend, as yet has no seminary in which to teach her sons the most valuable of all arts.

While this may sound a little like a fault-finding wail, it is to be remembered that he was in a new part of a new state, with little income and much outgo; seed was scarce and expensive. After planting, it was usually a fight against the gophers, blackbirds, crows, and other enemies to save the seed.

In the fall, before it was fully ripe, the squirrels, woodchucks, coons, and hedgehogs were on hand early in the morning and late at night devouring the crop. He had to battle against an army of insects and numerous diseases of vegetable and animal life. The soil seemed fickle; floods and droughts came, and the blighting effects of frost and heat withered the crop. With these and many other things to contend with, his plea was not to deprive other professions or classes of business, of money for education, but that "poor agriculture" should get a share of the money to obtain knowledge of meteorology, zoölogy, entomology, chemistry, physics, drainage, conservation of moisture, and other sciences needed in farming. Mr. Lothrop is named because by education, experience, and observation he showed by his utterances that he was able to interpret and express the feelings of the farming class truthfully and effectively. The widespread sentiment of the farmers was further expressed and urged by such influential and persistent men as Bela Hubbard, J. C. Holmes, and Joseph R. Williams, the first president of the College and a member of the constitutional convention which put that important article in the constitution of 1850 requiring the legislature, "as soon as practicable to provide for the establishment of an agricultural school." The legislature of Michigan instructed its delegations in Congress to ask for 350,000 acres of land to establish an agricultural school in this state.

In 1851, Governor Barry called attention in his message to the constitutional provision, which received some attention from members of the legislature. In 1853, a bill for an agricultural college was passed by the senate but lost in the house.

Governor Bingham in his message to the legislature, in January, 1855, recommended the establishment of an agricultural school and at some length strongly urged action. A bill passed the senate by a vote of 24 to 5, and the next day passed the house by a vote of 52 to 13, and was approved February 12, 1855. College Hall, a dormitory, and a small brick barn were erected in 1856 and on May 13, 1857, the College was duly dedicated. But the discussion as to whether it should continue as a separate institution, or exist at all, did not end, as is shown by the frequent discussions at various meetings and by articles in the public press, as well as by the opposition and strife at nearly every session of the legislature when the College appropriation was up for consideration down to 1869. In that year when the appropriation bill of $70,000 for the College had passed the house and came to the senate for concurrence, a carefully prepared bill was offered transferring the College to Ann Arbor, as a department of the university. This was defeated, and the $70,000 was given the College by a vote of 22 to 8. An editorial in the *State Republican*, under the heading of "End of a Ten-Year Fight," mentioned the vote as ending a fight to destroy an institution which a democratic majority had provided in the constitution, and a republican majority had put into active operation.

A partial record of this long struggle will be found in the reports of either the State Agricultural Society, the State Board of Agriculture, the Superintendent of Public Instruction, or the Pioneer Society.

I will not follow this farther except to quote a paragraph from the *Detroit Post* of March 31, 1869, which fairly voices the general feeling at that date.

It declared: "But the action of the state government has been so sweeping and provident that the Agricultural College may be looked upon as a permanent institution, unless it contains some inherent defect that no money or state aid can supply." The article ended by "urging a cordial support of the College, and to invite a renewed interest in it and in its capabilities for educating and developing a strong, earnest, intelligent farming community." Thus it was fifty-two years between the first legislative enactment hinting at agricultural instruction and the passage of the last act which seemed finally to settle and fix the status of the College.

To get a broad view of the present and to meditate a little on the past, the roof of the new engineering building furnishes a good place. Walk around near the edge of it and think of fifty years ago, recalling the three buildings, the few acres partially cleared, with charred logs, stumps, and the litter of the builders strewn around; the vision limited to a small circle bounded by a wall of forest trees, burned and blackened while clearing the few acres above mentioned. Recall the crooked road to Lansing with its mud holes, corduroy and roots of trees extending into the traveled part which had not been cut or worn away. Think of roads from Lansing to your respective depots, and of the railroads carrying you nearest to your home, and of the variety of vehicles, whether carriages, stage, lumber wagon, or on foot, the latter usually the most comfortable. Forgetting the past, stroll leisurely around again and inspect the campus, with every sort of tree, shrub, or vine common to this latitude, its walks and drives, its cozy nooks and winding paths, its flowers and plants in great variety, all or nearly all labeled and well kept. View the fifty or more buildings and think of their equipment and contents, constituting a very complete outfit for the purposes intended, especially when we get our agricultural building and fire-proof library, which we hope for in the near future. Linger a few moments more, and beyond the campus scan the gardens,

fields, forest, and the experimental plats, all surrounded as far as the eye can reach with homes and farms indicating thrift and comfort. When ready to depart, you can safely go in patent-leather shoes over the macadem road to Lansing, ride comfortably in carriage or wagon, or rapidly by automobile, or make use of the cheap and convenient street cars, any of these landing you at or near the depots, where you may take commodious cars, running speedily over smooth tracks to or near your home. You may query, "What are some of the results of this vast expenditure of time and money?" The following are suggested as a partial answer: Graduates, including 1907, 1,288, about half remaining in Michigan, and the other half scattered into every state and territory in the United States and about a dozen foreign countries. Non-graduates, 7,393, or a grand total of 8,681, besides 1,007 who have taken special courses in agriculture. Most of the non-graduates and many of the graduates are on farms, and the College has representatives in nearly every agricultural college and experiment station in the United States and a few in foreign countries, occupying positions from president down. A majority are following pursuits along the line of their college training or allied work. And it has been a matter of frequent remark that those who have been at the College and gone into the professional or commercial employments have taken a deeper or more lively interest in rural affairs.

By the latest published *Institute Report* I find that the total attendance at farmers' institutes for 1905–6 was 126,535. The frequent lectures and talks given by those connected with the college to Grange gatherings, farmers' picnics, state and local horticultural societies, farmers' clubs, women's clubs, and to a large number of graded and district schools, easily swell the number to 150,000 during past year who get direct benefit from the college instruction, and all of these have an indirect influence on the people, difficult to estimate.

A number are employed in newspaper and magazine work,

mainly writing on topics of special interest to the farmers and industrial classes. Thirty-four, the latest number I have seen, are employed in the Agricultural Department at Washington. In this connection, I wish to remind you that near the beginning of this College, there was a mere pittance expended by the United States for agriculture, and the Senate had dropped its committee on agriculture. Today, the government has a Department of Agriculture, regarded by the mass of its citizens as of equal importance to any other of its great departments.

In my opinion, the creation of this department is largely due to the work and influence of this and other agricultural colleges and experiment stations. I will not detain you to enlarge upon its widespread and valuable services, as we are to have the pleasure tomorrow of hearing Hon. James Wilson, its present efficient secretary.

My brother and sister, I appreciate that I have given you much with which many of you are familiar and that you will regard most of it as ancient history. But experience and observation have convinced me that it is well to review at times the history of the struggles of the Revolution and of the Civil War. It increases our appreciation of what it cost to establish and maintain a government and so increases our patriotism and anxiety to guard, improve, and perpetuate it. So of our Alma Mater. She has had a long struggle and exists because of the host of intelligent and farsighted men and women who have through years of unwearying persistence and patience stood by her. All this has undoubtedly made her a more efficient and helpful mother, enabling her to send out a stronger heritage. She being older than her sister colleges, her children have gone out in the past to work in other similar colleges in larger numbers than have the graduates of any other college. Hence, by this exceptional opportunity they are able to bring back to their Alma Mater their experiences and observations upon nearly every college and experiment station in this country and in some

foreign countries. I feel sure she will be specially glad of their contributions. Equally sure am I that she is particularly proud of those of her children who have gone out to sister institutions, making their work an influence felt, and making a good name for themselves and for their Alma Mater.

We realize that these colleges and experiment stations are engaged in similar work, the main purpose of which is to make worthy citizens of our grand republic, citizens who shall appreciate the need of good health and such a physical development as will enable them to stand the strenuous life entailed by increasing competition. Who knows the value of a broad and thorough mental equipment as giving them a larger liberty in the choice of a pursuit, crowning all with such a moral fiber as will bring a ready "Yes" to the right, and such an emphatic "no" to the wrong as will ever ward off the tempter?

Necrology

HERBERT WINDSOR MUMFORD, 1891

It is something more than a duty, this custom of remembering those whose race is run or whose life has prematurely gone out. Every loyal alumnus of our College feels that in setting aside a few minutes on the program we are giving but scant recognition to those who were once active among us. We are happy in our renewal of old associations and yet there is scarcely one of us who does not feel that something or someone is lacking to make our joy complete. To some who have, because of special ties of friendship or relationship, been especially bereaved, we, as alumni and brothers, extend our most cordial sympathy, and trust that this part of our program will recall sweet memories of those we loved.

[Following this Professor Mumford spoke briefly of the life and work of each of the alumni who had died during the preceding four years. The list of those of whose death he had learned, together with the date, with the class to which each belonged, and with the place and date of death, as far as learned, is given below.]

L. V. Beebe, of the class of 1861, died at Utica, New York, August 11, 1904.

Sylvester M. Millard, of the class of 1864, died at Lake Geneva, Wisconsin, December 1, 1905.

Charles Henry Watson, of the class of 1866, died at Milwaukee, Wisconsin, April 14, 1907.

George Finney Beasley, of the class of 1868, died in Detroit, November 2, 1904.

William Asa Rowe, of the class of 1873, died in Vevay Township, Ingham County, Michigan, November 1, 1905.

WILLIAM C. HARPER, of the class of 1873, died at Grand Rapids, Michigan, October 8, 1906.

DR. LOVIAS F. INGERSOLL, of the class of 1874, died at Grand Junction, Colorado, in December, 1906.

DUSTIN C. OAKES, of the class of 1874, died at Grand Haven, Michigan, September 26, 1903.

DR. CORYDON PIRNIE CRONK, of the class of 1879, died at Cape Henry, Maryland, December 13, 1903.

ALVA SHERWOOD, of the class of 1881, died at Detroit, Mich., September 27, 1905.

DR. WILLARD H. COFFRON, of the class of 1882, died at Grindstone City, Michigan, April 7, 1904.

J. M. HOLLINGSWORTH, of the class of 1882, died at Whittier, California, May 18, 1907.

PERRY G. TOWAR, of the class of 1885, died at Garden City, Kansas, October 8, 1906.

C. P. LOCKE, of the class of 1891, died at Ionia, Michigan, December 27, 1904.

VICTOR H. LOWE, of the class of 1891, died at Fort Collins, Colorado, August 27, 1903.

LEANDER BURNETT, of the class of 1892, died at Avalon, Pennsylvania, December 26, 1906.

E. N. THAYER, of the class of 1893, died at Livingston, Montana, May 6, 1906.

NOEL M. MORSE, of the class of 1896, died in New Haven Township, Gratiot County, Michigan, October 4, 1904.

MISS CLARE DEAN, of the class of 1902, died at Mt. Pleasant, Michigan, February 3, 1906.

HARRY HAMMOND CROSBY, of the class of 1906, died at Three Oaks, Michigan, October 16, 1906.

MEMORIAL DAY EXERCISES

THURSDAY AFTERNOON

MEMORIAL DAY ADDRESS

WASHINGTON GARDNER

It seems eminently fitting that in the somewhat elaborate program of exercises commemorative of the founding of this institution of learning, whereby its history, its spirit, its aims and accomplishments are sought to be more fully set forth, a place should be given in honor of the heroes who went from its halls to the service of their country. In the earlier, as in its later years, the atmosphere of the College seems to have been surcharged with the spirit of patriotism. The first class was graduated in the year the war for the preservation of the Union began, and of that class every member save one entered the federal army. One-third of its members were killed in battle or died of disease while in the service. In Civil War times the attendance, as compared with the present, was small, yet the records show that from the then student body there was in the Union army a total enrolment of sixty-eight. As an evidence of the high character and intelligence of these sixty-eight young volunteers, thirty-one became commissioned officers. In proof that the culture of the scholar and the valor of the hero are not incompatible, it is only necessary to state that of these student warriors more than 13 per cent. were killed or mortally wounded in battle, that others died of disease, and still others were wounded, maimed of body, or broken in health, many of whom have long since gone to premature graves.

In the late war between Spain and the United States, Michigan's quota of infantry was five regiments, and in these the names of forty-three officers and enlisted men are found in the student enrolment of the Agricultural College. Having in mind this splendid record of patriotic service, may we not with pro-

priety, on this national memorial day, consider some of the issues involved and some of the questions settled by the great war which asked and received such devotion and sacrifice not only from the students of this institution but everywhere from the patriotic young men of our country?

While there were important secondary influences that served well the purposes of the agitators on both sides, the basal difficulty was a question of construction of the fundamental law about which there was an honest difference of opinion.

Under the Constitution as interpreted by the founders of the government and for a generation after them, there seems to have been no question as to the right of a state to withdraw from the Union. At that time the foremost men in the country seemed to regard the system of government under the Constitution as "an experiment entered upon by the states and from which each and every state had the right peaceably to withdraw, a right which was very likely to be exercised." In her act of ratification, the delegates of Virginia in the name of that commonwealth declared that the powers granted under the Constitution being derived from the people may be resumed by them whenever the same shall be perverted to their injury. Madison held that "as the Constitution of the United States was formed by the sanction of the states given by each in its sovereign capacity it followed of necessity that in the last resort there could be no tribunal above their authority to decide whether the contract made by them be violated." Mr. William Rawle, the eminent Pennsylvania jurist, in his commentaries said, "The states may wholly withdraw from the Union, but while they continue, they must retain the character of representative republics. The secession of a state from the Union depends on the will of the people of such state."

There can be no doubt that, in the beginning, the union of the states was looked upon as a mere confederacy, an agreement, a compact, a bargain, an experiment, and that member-

ship therein was regarded as subject to the wish or will of each to exercise its sovereign right to remain in or to go out from, as it saw fit. Witnesses are not wanting, individual or collective, to prove that this doctrine, so perilous to natural unity and national permanency, permeated all sections and needed only what might be regarded as a sufficient grievance to make its operation manifest. The disastrous commercial results following the placing of an embargo upon American shipping by President Jefferson led to open threats by some leading Massachusetts men with a strong popular following, to dissolve the Union. The acquisition of the Louisiana Territory, now, and for a long time, regarded by men of all parties in all sections of the country as one of the master-strokes in American diplomacy and one of the crowning acts of American statesmanship, was deeply resented and bitterly opposed by many of the most eminent and patriotic of our countrymen. One of these was a soldier of excellent record in the War of the Revolution, a cabinet officer in the administration of Washington, and later in that of John Adams, and still later a distinguished senator in the Congress of United States who, in speaking of the preponderating influence the Louisiana Territory would give the South and West, said, "I will not despair. I will rather anticipate a new confederacy. There will be a separation. Our children at the farthest will see it." Another distinguished son of the North was the first to declare and advocate on the floor of the American Congress the doctrine of secession. Just fifty years before Fort Sumter was fired upon, when the bill for admission of Louisiana as a state was under discussion, Mr. Josiah Quincy, then a leading member of Congress and afterward for many years president of Harvard College, in defending the proposition that the Constitution had not conferred upon Congress the power to admit new states except such as should be formed from territory belonging to the Union in 1787, said, "I am compelled to declare it as my deliberate opinion that if this bill passes, the bonds of

this Union are virtually dissolved, that the states which compose it are free from their moral obligations, and as it will be the right of all so it will be the duty of some to prepare definitely for a separation, amicably if they can, violently if they must."

When the nation was in the midst of its second war with Great Britain and while the issue was still in doubt the Hartford convention, largely representing the New England states, was convened to discuss not the right—that seemed to be taken for granted—but the expediency of secession. With closed and sentineled doors they sought, among other things, to determine the advisability of forming a new confederacy with the Hudson River as its western boundary.

The proposition to admit the territory of Missouri as a state into the Union without slavery evoked the most violent and foreboding discussion, not only in Congress but by the press and people throughout the country. In that discussion it was held by the South that to prohibit slavery in Missouri was a dangerous and despotic measure and one that would infringe upon the sovereignty of the states. Her indignant protests against the exclusion of slavery from the proposed new state were attended by serious threats to dissolve the Union. It was during this discussion, more than forty years before the outbreak of the Civil War, that a southern member of Congress uttered the portentous prophecy that in the agitation of the slavery question a fire was being kindled which could only be extinguished by blood.

Because of what was claimed to be an unconstitutional and oppressive protective tariff, advantageous to the manufacturing states of the North and East and disadvantageous to the agricultural interests of the South and West, several states in the cotton-growing belt of the Union threatened to nullify the laws of the federal government, while South Carolina went so far as to declare the "tariff acts null, void, and no law, nor binding upon that state, its officers, or citizens." She seriously purposed to withdraw from the Union, and within her borders prepared

to resist by force the administration of the national laws. Communities in the North repeatedly, violently, and even boastfully, opposed the local enforcement of the Fugitive Slave Law of 1850 and in turn were justly chargeable with practical nullification of federal statutes. The fires of sectional hate fed on that which was designed to extinguish them.

The culmination of events, in 1860, brought the country to the verge of a crisis that seriously threatened the very existence of the Union. The South, unified by an appeal to endangered property interests in chattel slaves, estimated at more than two thousand millions of dollars, and the apparition of the hideous ghost of a servile insurrection, invoked the doctrine of state sovereignty and the asserted constitutional right of withdrawal from the Union as its way of escape from what it believed to be impending calamities. It claimed that "any state whenever this shall be its sovereign will and pleasure may secede from the Union in accordance with the Constitution and without any violation of the constitutional rights of the other members of the Confederacy; that as each became parties to the Union by votes of its own people assembled in convention, so any one of them may still retire from the Union in a similar manner, by the vote of such convention."

In opposition to this contention so long and so stoutly maintained, Mr. Lincoln, when he came to the presidency, held, that "in contemplation of universal law and of the Constitution, the union of these states is perpetual;" that "perpetuity is implied if not expressed in the fundamental law of all national governments; that no government ever had a provision in its organic law for its own termination." The logical conclusion drawn from these syllogistically stated propositions was that no state can lawfully go out of the Union if by so doing it imperils the existence or the integrity of the general government. Upon these two points of contention the issue between the sections was made up and fairly joined.

There was, however, another exceedingly important question involved in the controversy. That was whether if a state should secede the constitutional right inhered in the general government to compel by force such state to remain in the Union against its will. Upon this point men of the highest intelligence and of unquestioned patriotism and loyalty to the government differed in opinion. Many in the North believed with President Buchanan who, while disclaiming the right of a state to secede, declared it as his deliberate opinion that no power has been delegated to Congress or to any other department of the federal government to coerce a state into submission which is attempting to withdraw or actually has withdrawn from the confederacy. Congress, he said, might preserve the Union by conciliation, but the sword was not placed in its hands to preserve it by force. These views, expressed by the official head of the nation in a message to Congress so late as December, 1860, undoubtedly served for the time being to divide the North and to unify and strengthen the South in the already largely preponderating opinion entertained in that section against the constitutional right of coercion.

In the secession of certain of the southern states and their organization into a confederacy; in the seizure of United States property, as forts, arsenals, custom houses, mints, and post-offices, and their appropriation by the individual states or the confederacy of states, and finally in the premeditated and carefully planned assault on Fort Sumter, men saw that the time for argument, for conciliation, and for compromise had passed and the time for battle had come. The shots that echoed across the waters of Charleston harbor in the gray dawn of that April morning in 1861 awoke the nation from the repose of peace to the realization of war. In that momentous hour one supreme question challenged every loyal American, "The federal Union, shall it be preserved?" Upon the issue involved in that question Lincoln made his appeal to the country and in response to that

appeal an aggregate of more than twenty-two hundred thousand men came forth, representing the incarnated spirit of the nation's purpose to preserve and transmit unimpaired that which the fathers had bequeathed.

Important questions, some of which had been in dispute since the founding of the government and which neither ministers, nor publicists, nor statesmen, nor jurists, nor cabinets, nor presidents could peacefully and permanently settle, were now submitted to the arbitrament of arms. It is not necessary at this time and in this place to detail the story of the mighty conflict, nor to institute a comparison between the sections. It is enough for both the North and the South to know that the issues that so long disturbed the tranquillity and menaced the peace and permanency of the republic were unalterably settled by the war of 1861–65. By that war once and for all time it was determined that the federal Constitution is the supreme law of the land; that the first allegiance of every citizen of the republic is to the national rather than to a state government; that nullification as an assumed reserved right of the states is eliminated as a factor from the problem of American politics; that within the limits of the Constitution the federal Supreme Court shall be everywhere recognized as the ultimate authority in the construction of law, and that the law as so construed must be obeyed by all alike until changed by constitutional and not revolutionary methods; that in the relations existing between the national and the several state governments, the latter are integral but subordinate parts of which the former is the one supreme and indissoluble whole; that if any state attempts to, or actually does, withdraw from the Union, the constitutional authority not only inheres in but the duty is enjoined upon the general government to compel such state, by force if necessary, to remain in and to resume its rightful and normal relations. That war determined that, wherever the flag of our country floats in undisputed authority, there slavery or involuntary servitude except for the punish-

ment of crime whereof the party shall have been duly convicted shall be forever prohibited. When the war closed it was settled that the government of the United States of America was not a mere confederacy but "an indestructible union of indestructible states."

In view of these universally recognized and conceded results, the heroic dead, whose patriotic sacrifice we this day commemorate, did not die in vain, and the living, maimed and broken in health, who still abide among us, have not suffered without recompense. Every sincere lover of his country can but rejoice in the fact that the feelings of sectional hate, engendered by many years of embittered controversy culminating in the fierce strife of civil war, have passed from the hearts and no longer find expression upon the lips of men, and that where war and malice once held sway peace and good-will are enthroned.

CAMPUS ILLUMINATION

RECEPTION

PROMENADE CONCERT

THURSDAY EVENING

THE ILLUMINATION

The evening of Thursday was given over to the student body. Under the magic of innumerable electric lamps which outlined all the principal buildings and which, half hidden by Japanese lanterns, stretched hither and far along Faculty Row and many other walks, the campus became a veritable fairyland.

All the young men of the student body, in white capes and leggins, and carrying flaming torches, gathered in front of Wells Hall, and after an intricate march about the campus, seated themselves on the grass in front of the Women's Building, so as to form the letters M. A. C. Here the young women of the College, coming from the building, after an involved fancy march called the "Oak Chain," formed the letters M. A. C. Then joined by the men, they indulged for an hour in rollicking college songs. The music finished, all of the student body, together with 10,000 visitors, crossed the campus to Wells Hall. In front of this building tar barrels and other inflammable material had been piled to the height of thirty feet, and after a great circle had been formed the bonfire was kindled. Under its brilliant light the students marched about in a circle, singing songs and enjoying themselves as only college students out for a lark are capable of doing.

THE RECEPTION

At nine o'clock a reception to the delegates, alumni, and friends of the College was given in the College Armory. In the receiving line were President and Mrs. Snyder, Governor and Mrs. Warner, President Monroe of the State Board of Agriculture, and Mrs. Monroe, and President Angell of Michigan State University.

Until well toward midnight the old Armory was happy with the hearty greetings of friends who had not met perhaps for years, and was brilliant with electric lights, with beautiful gowns, with smiling faces, and with the cordial good cheer of the entire company.

THE PROMENADE CONCERT

During the same hour a promenade concert was in progress in the Assembly Tent, given by the Bach Orchestra of Milwaukee. The great tent was crowded throughout the rendition of the very enjoyable program given below:

PROMENADE CONCERT PROGRAM

1.	Grand March from Tannhäuser	*Wagner*
2.	Overture, Jubilee	*Chr. Bach*
3.	Selection from Ernani	*Verdi*
4.	Solo for Cornet	
5.	Concert Waltz, "Bei uns z' Haus"	*Strauss*
6.	Overture to Maritana	*Wallace*
7.	Largo	*Handel*
8.	Philharmonic Echoes	*Tobani*
9.	Serenade for Flute and Horn	*Titl*
10.	Agricultural College March	*Chr. Bach*

Between the musical numbers portraits of groups of students taken years ago, and portraits of famous alumni and of well-known faculty members, together with reproductions of the college buildings of the past and present, were thrown on a great screen, and were especially enjoyed by the alumni who were present.

JUBILEE EXERCISES

FRIDAY MORNING

THREE THINGS LAST CENTURY

SECRETARY JAMES WILSON

It has been said that the United States did three unique things in the last century. It built at Washington the Capitol, the Washington Monument, and the Congressional Library, each the finest of its kind in the world. A much grander work was the laying of the foundation of agricultural education and research to prepare the farmer for his life-work, establish agricultural literature, and lift the tiller of the soil to a higher level of efficiency as a producer and a citizen. No country on earth has such a comprehensive system to bring about these results. The total number of land-grant colleges is 65, and 63 of these give courses in agriculture which are attended by 10,000 students. These colleges are also largely engaged in giving instruction in agriculture to adult farmers in the farmers' institutes which are annually attended by over one million farmers. These institutions have permanent funds and equipment amounting to $84,000,000 and an annual revenue of $14,500,000, to which the federal government contributes $3,000,000 and the state governments $7,500,000.

The work is telling in many ways. Young people go to these institutions who would not go to any other. There is a great demand at home and abroad for young people educated along these lines. The brightest farm boys and girls are being educated for the farm. It is the most delightful and comprehensive study of material things to which the mind can be applied.

FEDERAL AND STATE WORK

There has been steady progress during the half-century that marks the work of the Michigan Agricultural College. Con-

gress has endowed educational and research institutions in the states and territories. The federal government has co-operated with the states, and operated where the work was interstate. The movement to educate the producer has reached the problem of primary and secondary education, so that the young farmer may be turned toward the study of the elements of the sciences that are to have his future attention. These combined efforts will result in making household words of what is now taught in college. Discussions of climates, soils, movements of moisture, plants and their improvement, animals and their antecedents, trees and their value, sanitation and its application, will all become familiar to the educated farmer's family.

NEED OF AGRICULTURAL COLLEGES

Suppose each of the gentlemen invited here to rejoice with the Michigan Agricultural College in its day of triumph was asked to tell you why we need agricultural colleges, basing his reasons on his observations while on the way here. I would say: The water level is too near the surface in a large percentage of our best soils; tile is not being laid deep enough—most plants send their roots down four or five feet seeking nutrition—the rootlets stop when they reach stagnant water, and only that depth of soil is at work for the farmer that lies above the water level. I see drains being laid eighteen to thirty inches deep that should go down to forty-eight inches at least, for reasons that every student in the graduating class can give, but which are evidently not known to farmers generally. As the science of soils becomes better understood, much of the draining of today and of the past will be done over again.

PASTURES

I have observed on my way here that decided improvement can be made in the pasture, which makes our most valuable crop and is our best recuperating agent. A majority of farmers have only one grass growing, suitable to the soil and climate.

Grasses are at their best at different seasons, then they rest for a time. They should supplement each other throughout the seasons. Many pastures have no legumes growing with the grasses, while all that are at home in the soil or climate should be under tribute. The office of the legume is well known to everybody here. The agricultural colleges should do demonstration work along such lines as pasturing and draining in all the states. Perhaps it should be done through other state agencies, in co-operation with the college faculties. We must not be content with research work that hits nothing, that is not applied to something, that helps no farmer or handler of crops. Leave all that to abstract science. We must make good and find pots of gold at the ends of all our rainbows.

PERCENTAGE OF FARMERS

Including the population of our island possessions, half of the people under our flag are producers from the soil. This half owe it to the other to prepare themselves for discharging the duties of citizenship with the highest intelligence. They are financially able to educate, as 72 per cent. of our exports—or nine hundred millions of dollars—is the price of farm products sold abroad annually, after supplying the home requirements. They have leisure and more facilities for reading and reflection than the other half of the people. Rural free delivery of mails, the telephone, the daily and farm papers, magazines, and other sources of information combine to form powerful adjuncts in the education of the farmer and his family. They are not organized as a class, and are not likely to be, but they are the nation's jury when questions of public policy are to be settled.

FINE MACHINERY

The returns from intelligent farming are becoming more satisfactory as the principles that govern production are better understood, affording better homes and home conveniences. Our farmers are experts in managing fine machinery, and the

crops grown by one man's efforts are astonishing. Commerce, manufacturing, mining, and carrying call help from the farm, and raise the price of labor. Production is hardly keeping step with growth of population, which results in higher prices for crops. Few of the immigrants coming to our country could do the work required on the farm. They fit into other industries more readily. Our agricultural colleges have broadened the minds and strengthened the arms of our farmers, and increased their efficiency. They have helped them into a class by themselves among farmers and have dignified their calling.

FARMERS IN REQUEST

The farmer is in request when the army and navy are to be recruited, when the city is to be reinforced, when the professions need quiet nerves and capacity for study and strain, when capital and labor take their dispute to the polls, when a public man is to be weighed, and when the nation settles public questions at the ballot box. As a people we are quite successful in governing in the country, the village, the town, and in the state outside of the large cities. The cities perplex, the country assures. The better education of country folk will gradually bring into counsel a safe element. The future of the republic depends upon the intelligence and moral rectitude of the citizen.

DEVELOPMENT OF ANIMALS

The development of domestic animals of all kinds for various uses on different soils in varying climates has hardly been begun in this country. We take the results of foreign breeders that dealt with conditions quite dissimilar from most that we find in this country. We must suit the animal to the pasture to reach the best results, and pastures vary. Each state or group of states will eventually learn by experience what animal will be most profitable. No other country on earth has as much capital invested in animals as we have. We look after their health and

the excellence of their products, but we have done little to improve them.

RURAL EDUCATION

Do not understand me that I would limit the education of rural families to material affairs—to the getting of "bread and butter," as some thoughtless men in prominent places term agricultural education. Man's responsibility to God and to his fellow-man is now being impressed upon young and old, in country and village and town, by the grandest organization of churches and Sabbath schools known to any people, where man's nobler nature is being stimulated and developed with infinite pains and at such expense as we are never likely to see devoted to material things. Highly enlightened society, as we have it, requires liberal incomes. Good farming is the basis of bank accounts in our country. Fill the pupil's stomach before you teach altruism, and see that the teacher has had beefsteak for breakfast. One of the most praiseworthy lines of work being done at our agricultural colleges is the training of young women in what pertains to themselves and others, including domestic economy, sanitation, nutrition, ventilation, and correct living, resulting in the American girl, unique, unequaled, perfect.

FOR MICHIGAN AND ITS UNIVERSITY

PRESIDENT JAMES BURRILL ANGELL

It is with pleasure that I come to bring the cordial salutations of the University of Michigan to the Agricultural College on this glad day. The relations between the two institutions have always been most friendly. The University has furnished two able presidents to the College, President Fiske, and President Willits, whose administrations form important chapters in your history. Not to speak of those younger teachers who have been trained in our halls, we remember as you do with pride the long and conspicuous services of our graduates, Dr. Kedzie and Dr. Beal. It would perhaps be difficult to name a teacher in any institution whose services have been more useful to Michigan than those of Dr. Kedzie; and Dr. Beal, we are happy to say, is still spared to continue his long and creditable career. Not a few of your graduates have to our great satisfaction come to us and won distinction in specialties which it was not your province to furnish.

As you well know, in the early 50's the University authorities were desirous that the College should become a member of the University household. But the coy maiden declined our suit, and so we have each led a life of single blessedness. We at the University have often been inclined to think that it would have been better for both of us if we had joined our fortunes at that time. But we are compelled to remember that it is unprofitable for rejected suitors to complain, especially when the coy maiden has prospered so well by herself in her own household.

Like all educational state institutions in the younger states this College has had her days of juvenile troubles—what I often compare to the mumps and measles and whooping cough in

children—but she has come well out of them all. Some forty years ago it fell to my lot to conduct the organization of the Agricultural College in Vermont in connection with the university. I found as our friends have sometimes found here that the most serious task was to convince the very class for whom these colleges are founded, namely, the farmers, that the institution had anything of value to offer to their children. The methods of farming were so intrenched by tradition and immemorial usage that any proposition to improve them by college training was hopelessly condemned as mere "book learning."

I think the chief agencies in winning favor for this and for all similar colleges have been farmers' institutes and the experiment stations. By the papers and discussions in the institutes it has been made clear to the most conservative farmer that he has something to learn from others, and by the researches at the stations it has been demonstrated that experiments conducted according to the most approved scientific methods can reveal how to make the raising of crops or the culture of fruit or the breeding of animals more profitable.

It has now become clear that even as no other industry is so important to us as the agricultural, so there is no industry to which science is able to make more valuable contributions. Furthermore, in studying this vexed problem, how to keep the bright boys on the farms, it has become apparent that one of the wisest things is to show them that, rightly understood, the most effective conduct of the farm furnishes an opportunity for the exercise of the highest intelligence, enlightened and inspired by the best type of theoretical and practical scientific training.

This college has been fortunate in commanding the services of teachers of a high order of merit, several of whom are known wherever agricultural education is appreciated. Indeed, some of them have been so conspicuous that they have been drafted into the service of other institutions that pay higher salaries than Michigan allows herself to offer. Moreover, a good number of

the graduates of this College have been gladly seized by other leading colleges for important positions in their faculties. I sometimes think that the institutions of higher education in Michigan are called to furnish more than their quota of brightest young men to colleges and universities in other states. But after all that is a useful function of these institutions, and we ought perhaps to feel proud that these graduates are so much in demand as teachers in all parts of our country.

Speaking for the University of Michigan I desire to congratulate this College most heartily that on its fiftieth birthday it finds itself guided by so competent a faculty with so efficient a president at the head; that it sees so many graduates by their lives and their influence reflecting honor upon the College and upon the state, and that its halls are filled by so large and so earnest a company of ingenuous young men and young women who are here training themselves for worthy and useful careers. As the demands upon the institution are increasing with the rapid growth of our population and with the more intelligent pursuit of agriculture, may the means not be wanting to it to make its future even more beneficent than has been this first half-century of its useful life.

ADDRESS FOR THE EAST

RUFUS WHITTAKER STIMSON

GREETING

He who on this occasion would honor Michigan Agricultural College would but honor himself, so high a position of dignity and usefulness has this institution attained among not only the sisterhood of the land-grant colleges, but also among all other educational institutions. The East gladly and proudly joins all quarters of our country in bringing greetings and congratulations on this happy occasion.

THE EAST

The so-called French market in the foreign quarter of New Orleans is a unique and most attractive spot. It consists of roofed but open-sided pavilions. In it may be purchased almost everything imaginable from cut glass and cut flowers, laces and embroidery, to meats and fish, fruit and vegetables. About six months ago I arose at daybreak to visit this market, and came at one corner of it upon a young creole who was tying up what he called vegetable bouquets. One knows a young onion when one sees it, and a young turnip. There were vegetables in those "bouquets," however, with which I was quite unfamiliar. After answering my inquiries, the young man finally turned on me with the question:

"Not to be too inquisitive, where do you come from?"

"Down east—New England," I answered.

"Oh," he exclaimed, "you don't live in the United States!"

"Yes," I said, "I do."

"Ah," he queried, "the United States governs your island?"

In speaking for the East I need hardly say to the people here assembled that I speak for a land and people comprised

within the United States, nor produce any argument to prove that the East has contributed a fair quota to the statesmanship of our country as well as to the classes of the governed.

THE OLD HOME

To many a man in the West, the East has for long been the old home—so many in the West have themselves migrated from the East, so many are the sons or daughters of eastern parents now settled in the newer country. When the institution I have the honor of serving issued the first booklet of its summer school for teachers, copies found their way here. It was most interesting to observe the instant response of western editors. Requests immediately began to be received for the use of halftones or for the purchase of photographs for printing, so suggestive of the old home to dwellers on the prairies were the illustrations of the booklet. Recently we came West to the great University of Illinois in our search for a man for the headship of an important department. The man we chose was attracted by the great company of distinguished scholars and scientific men in New England whose ranks he was invited to join. Our prosperity stirred him, for New England still has money to lend. He was also impressed by our thrifty farms, with their fertile, if sometimes stony, fields so closely adjacent to our magnificent markets. But what attracted him most of all, and what finally determined him to accept our offer, was the desire that his boys should have an opportunity for growing up among the brooks and the woods and the hills of New England. To move East would be to draw near the old home of both his wife and himself. Not unlike the tumult in the bosom of the foreigner, when he thinks of the "old country," are the feelings of affection in the breast of the westerner when he thinks of the old home in the East.

THE EAST AND EDUCATION

But it is not of the East in government, nor of the East as the old home, that I desire principally to speak. The chief

suggestions prompted by this occasion concern the place of the East in education.

If you were to visit the oldest college in our country, Harvard University, entering the main gate leading to University Hall you would find on your left old Harvard Hall, the tongue of whose belfry has called generation after generation of young men to lectures and to prayers. On your right you would find old Massachusetts Hall. The Old South Church, across the Charles in Boston, has been called the birthplace of American liberty. Faneuil Hall, Boston, has been called the cradle of liberty. In a very important sense old Massachusetts Hall might well be called the schoolhouse of liberty, so many succeeding classes of young men have been schooled within its walls in the history and principles of American freedom. Recently a niche has been built into the front of this old colonial building. When the class of 1883 was deciding who might most appropriately occupy that spot, they chose a man who has been called by one of our foremost scientific men "perhaps the best poet for the working man," James Russell Lowell. And when the sentiment to appear on the pedestal beneath the bronze bust was chosen, these were the words cut into the marble:

I, FREEDOM, DWELL WITH
KNOWLEDGE: I ABIDE
WITH MEN BY CULTURE
TRAINED AND FORTIFIED

On the outer gate, within a stone's throw of this new monument, one reads the ancient inscription that the primary object in the founding of Harvard College was to protect the children of the colonists from the legacy of "an illiterate ministry." From the first moment, American freedom has been joined to knowledge; men of the East have been trained and fortified by the cultivation of their higher and finer powers.

The half-century marked by our celebration today is one of most extraordinary interest to the student of the history of teaching. While eradication of ignorance and development of personal power have been constant aims, there have been marvelous changes in means and methods.

Fifty years ago there was one great slogan, "mental discipline." For 800 years one type of training had dominated the schools. The first college of our fathers was a survival of the Middle Ages, those twilight days one of the idiosyncrasies of which was a mystical reverence for the number seven. There were seven planets, seven metals, seven days in the week, "seven apertures in a man's head," seven cardinal virtues, seven deadly sins, seven sacraments. Growing out of a curious regard for elements of seven, studies had been divided into groups of three and four. Grammar, logic, and rhetoric had constituted the so-called *trivium;* arithmetic, geometry, astronomy, and music, had made up the so-called *quadrivium.* And the education of fifty years ago, not only in colleges, but also in preparatory schools—education claiming for its watchword, "mental discipline"—was very largely of the *trivium-quadrivium* type.

Already, however, there were signs and portents of change. The names of Darwin and Wallace, Huxley and Tyndall, Louis Agassiz and Asa Gray were commanding attention and respect. That is to say, powerful influences for change were at work, even within the schools and colleges themselves.

Perhaps of keenest interest to us who are met here today, however, are two influences which as the years have passed have exerted tremendous modifying power—both acting on established education, not from within the schools, but from the outside.

It is almost exactly fifty years ago that Mr. Herbert Spencer put into print, and challenged the public with, this question: "What knowledge is of most worth?" Answering for himself

he said: (1) That knowledge which has to do with self-preservation. The litle babe's eyes must be protected from the bright light lest they suffer harm. His first steps must be guided lest he fall. Berries good for food he must be taught to pick, not berries from bushes which poison. As the years advance every stage of life calls for special care lest the body suffer injury. All things which have to do directly with self-preservation are of the first importance. (2) That knowledge which has to do indirectly with self-preservation. Here Mr. Spencer referred to training which develops a man's power for earning a livelihood. All occupational knowledge is here included. The body must not only be protected from harm, it also must steadily be sustained and promoted in well-being. (3) That knowledge which has to do with parenthood, including all training necessary for the creation and well-being of family life. (4) That knowledge which is conducive to social or community welfare. (5) Finally, that knowledge which has to do with the graces and refinements of life, including literature, music—fine art in all forms.

Mr. Spencer's discussion was of great value owing to the broad scope of his treatment of education. It was unique for the order in which he stated the objects of knowledge and their relative worth. Before art and refinement he put social and community well-being. Before knowledge of history and politics he put knowledge of parental functions and obligations. Before all these he put that elemental knowledge which has to do with vocational efficiency. What gave his contribution its most searching pedagogic importance was his insistence on the relatively higher educational value of vocational knowledge for the average pupil in the average school, and no less for the average student in the average college. The school men could not escape his psychology nor his logic. The common people received his message gladly. Almost immediately his doctrine crossed to the continent, and there was translated into

French, German, Italian, Russian, Hungarian, Danish, and Dutch. Simultaneously it crossed the stormy Atlantic. Few men had have a profounder or farther-reaching influence.

In short, Mr. Spencer and those who espoused his views, or something like them, once for all protested against the domination of the former ideal in education, that mental discipline was the supreme thing. Knowledge, to be of worth, must not only train the mind; it must also furnish it for the immediate, pressing practical affairs of life.

Parallel with the scientific and philosophical treatment of education by Mr. Spencer came the movement which led to the establishment of the land-grant colleges. This also originated in round numbers just fifty years ago, and was a movement from outside the schools. It sprang from the soul of that wonderful farmer, blacksmith, village banker, and for many years influential member of Congress, the late Senator Justin S. Morrill of Vermont. Mr. Morrill contended that Congress and the legislatures of the several states should unite in furnishing a liberal and practical education. We should equip all young men and all young women for success in life—some for usefulness in the learned professions, others for success in the great basic, economic industries. The history of the development of these land-grant colleges I need not here trace, so familiar with it are we all, and so profoundly convinced are we of the educational wisdom and foresight of this grandmaster of public affairs. The practical program of Mr. Morrill, like the educational ideas of Mr. Spencer, met with opposition—prevailed in spite of it. The first Morrill bill was, as Dr. Abram Harris reminded us six years ago, vetoed by the gentleman-president, James Buchanan; the Morrill Act of 1862 was approved by the rail-splitter, Abraham Lincoln.

Happily, however, as the years have passed, the new education and the old have been joining hands. The old college has affected the new, and the new college has modified the old. The

training in the new college, Mr. Morrill said, must be liberal and practical. The education in the old college, the best leaders today are successfully maintaining, must be both practical and liberal. Probably no one man has exerted so powerful an influence toward the fusion of the best in the old education and the new, as, during the past quarter-century, has President Charles William Eliot. By his advocacy of the elective system, he has certainly vitalized the education of the old college no less profoundly than the training of the new college has been vitalized by the ideas of Mr. Spencer and Mr. Morrill.

Perhaps a personal reminiscence may be pardoned, since it indicates better than almost anything else could do the nature and spirit of our modern instruction. The brother of one of my college mates came to Cambridge on a visit. This brother, as a boy, could never be made to apply himself to books. Once out of the grip of the compulsory-attendance law, he left school and learned the plumber's trade. During this visit, he went with us to a lecture in a course in ethics called "Philosophy 3," presented by Professor George Herbert Palmer. It was not "Philosophy 1," an elementary treatment of the subject; nor yet "Philosophy 2." It was a decidedly advanced course in the midst of which he spent that hour. Knowing the family circumstances, I was exceedingly curious to learn what would be the effect on such a man's mind of modern Harvard, and at the close of the lecture I asked him how he liked it. His answer was almost startling:

"That," he said, "is what I call getting right down to brass tacks!"

Harvard is typical of the best, in her aims and in her methods. Individual freedom achieved by cultivation, education getting right down to the brass tacks of living—this is the spirit today of education in the East. There is the fullest warrant for the assertion that the best college education of our time is not so much preparation for life, as it is a cross-section of life.

GENTLEMEN OF THE OLD SCHOOL

A few days ago at the annual luncheon of the Mount Holyoke Alumnae Association of New York City, President Wooley said: "We are in danger of filling up the blessed margins of quiet." She referred to the over-strenuous activities of the modern college girl, especially in college dramatics and fraternities.

Kindred dangers are common to all our colleges, but the gravest, I believe, is the danger that our new college life may withhold from the world the best thing which the old college contributed to it. What that something was will be sufficiently connoted by the simple mention of the title, "gentlemen of the old school." Such citizens the old college created.

We are too often told today that all avenues into positions of prominence and usefulness bear on their gates one or the other of two legends, "Push" or "Pull." None of the merely Philistine elements of society can here be discussed. One very real peril, however, lurks in the path of our new education, and this, in conclusion, we must for a moment consider. I refer to the large amount of time demanded by laboratory and practice work in our highly technical courses, and the relatively limited amount of time given to that training and cultivation which frees the mind.

We are in danger that our strength may become our weakness. The educated man today, the man who would be freed by his college cultivation from the trammels of ignorance and incompetence, must be scrupulous to reserve for communion between his own soul and the best spirits of the world certain blessed margins of quiet. And we who are responsible for outlining courses of study should see to it that our institutions, east and west, north and south, turn out, not merely good farmers, good housekeepers, good mechanics, good engineers—good specialists in whatever department, whether of labor, superintendence, instruction, or research—but, at the same time, turn out grad-

uates who in our new day shall have a quality in their own living and in their influence on society kindred to that of the gentlemen of the old school, the splendid college men of a half-century ago.

FOR THE SOUTH

PRESIDENT HENRY CLAY WHITE

No portion of this great republic offers sincerer congratulations on this notable occasion than that for which I have the honor and the privilege to speak. That particular region which we call "the South" has abundant cause to recognize this celebration as commemorating a most important event in the history of this happiest and wealthiest of the nations of the earth. The people of the South in times past contributed their full share of patriotic energy to the establishment of the civic freedom which is the foundation of our national happiness, and, today, in larger relative proportions than elsewhere within our borders, they are devoting their intelligent endeavors to the winning of the great agricultural products which, at last, are the foundations of our national wealth. In this, the occupation of the large majority of our people, we, no less than our fellow-laborers elsewhere, have come to know that intellectual power and technical skill are now necessary factors in its efficient and economic conduct. It is interesting, but not remarkable, that agriculture, the earliest of the industrial arts, should be the latest to which systematized intellectual effort should be applied. All other arts are, essentially, creative; agriculture alone is, or may be, simply directive. Before the smelter, the manufacturer, the builder, or the engineer proceeds about his work he must have intelligent appreciation of many natural laws which determine the effectiveness of his finished product. But plants will grow and cattle breed with promise of sufficient fruits to satisfy man's needs, with need for little else than mere mechanical tending at his hands. Necessity, and not choice, has, therefore, determined the industrial fields in which man's intelligence has,

heretofore, been chiefly sharpened in the progress of his material civilization. Moreover, an understanding of the laws of nature must be embodied in the canon of the sciences before effective application of them may be made in the industrial arts. The processes of vegetable and animal production are largely biological, and biology is the youngest of the sciences. But, delayed as has necessarily been the really scientific practice of agriculture, its day has come at last, inciting to the highest order of intellectual endeavor and holding promise of marvelous fruits. Science, in appropriate form, now stands ready to serve the purposes of the husbandman and has demonstrated the ability so to do in abounding measure.

The congratulations offered for the South today spring alike from admiration and from gratitude. The records of the years immediately preceding the founding of this institution show that many earnest and patriotic men, in many of the states, touched with the spirit of scientific inquiry then practically newborn, and dimly conscious of the need for scientific training in education for and fruitful employment in the industry of agriculture, had striven blindly, in many diverse endeavors to relate properly the education of the children and the avocation of the people to the scientific spirit of the times. For the most part these endeavors were faulty in conception; in most they were inconsequent and vain. Provisions for teaching and applying the body of natural science then known for the improvement of agricultural practice had not, indeed, infrequently been made. In my own state, for instance—and I say it to her honor—three years before the founding of this College, a considerable donation (the largest, I believe, then of record) had been made by a private citizen toward the establishment of a chair of agricultural chemistry in the university of the state. Similar and sporadic endeavors—in what was, at least, a right direction—to quicken the art of the husbandman by an understanding of the nature with which he dealt were, however, far too few and inade-

quate for any marked impression upon the largest of all the industries.

It was reserved for the men of Michigan to be the first to conceive in wisdom and establish in strength an institution qualified in form and method to meet successfully the purpose of the founders and to serve triumphantly as the pioneer of a new reasonableness in education and of a great enlightenment in industry. Undeterred by the inertia of conservatism in the school and on the farm; unyielding to the clamors of radical experimenters in education and in industry; it has held fast consistently to the sane equilibrium of redecraft and handcraft in technical training and demonstrated its merits by its survival. To this victorious pioneer—remembering those who founded in wisdom and in faith, and those who guided in loyalty and zeal—to those who crown today, in prosperity abounding and confidence unshakable, this glad half-century of continuous, consistent, and successful endeavor, Michigan's fellow-patriots of the sister states of the South offer their congratulations in unstinted admiration.

To our admiration we add our gratitude. Though elder members of the family of states, we sisters of the South—through force of circumstance over which the present generation, at least, had no control—came into our own as full possessors of some features of the spirit of the age somewhat later in life than the young and lusty commonwealths to whose creation we had contributed. When, therefore, the belated time arrived when wisdom and necessity required a re-formation of our educational and industrial systems along other than the accustomed lines, we were fortunate that the experience gained in Michigan and the successful career of this institution pointed the way to immediate and wisest direction of certain of our efforts. The Michigan Agricultural College furnished us an admirable example by which to fashion our newly established institutions for industrial education, and in many instances, furnished us the

efficient teachers with which to man them in the experimental days. The statesmanship of Michigan met our commendation in yet another way, most agreeable to our traditional conservatism and our hereditary beliefs. It was here demonstrated that the new education and the newly inspired industry were designed to supplement, not to replace the old, for here in Michigan, along with the marvelous growth of this great technical college, went the equally marvelous growth of that great university dedicated more particularly to pure science and the liberal arts. The quickening of industry through education did not diminish but increased and contributed to the appreciation and the valuation of the humanities and culture. It has been here demonstrated that, whether under one roof or locally apart, these twin forces of liberal and technical education may work in harmony to the great and single end, the betterment of humanity. For what has here been done throughout these fifty years, and for what the doing of it has been to us, it is my great privilege to offer for the South today this inadequate expression of our admiration and our gratitude.

FOR THE WEST

PRESIDENT BENJAMIN IDE WHEELER

California sends greeting to Michigan. The orange makes obeisance to the yellow-tasseled corn. The valleys that mediate between the Sierras and the great ocean reach forth their hands to the prairies that hold the balance between the Lakes and the waters that seek the Gulf. The College of Agriculture at Berkeley salutes its elder brother who, as pioneer, opened for it the first paths and cut the brush. We learned both from your gropings and your findings, and we thank you for both. We know with you what it means to labor on the frontier, and we share with you the blessed western experience of trying and risking in a virgin field, whereby to irritate and teach the self-satisfied composure of the East.

The life of the nation has been continually freshened and its progress largely determined by the reaction upon it of men's experience on the frontier. This has mostly meant trouble, but trouble is the *sine qua non* of growth, and without pain there is no birth. After the thirteen Atlantic Coast states had become tolerably used to each other, and had settled down into fair composure, the occupation of the next row of states to the west produced Jackson, the new democracy, and various troubles and fusses. The admission of California in 1850 undid the Missouri Compromise which for thirty years had formed the basis of a truce between North and South. The settlement of Kansas and Nebraska in the 50's brought on the Nebraska Bill, which made the Civil War inevitable. The advance of agriculture into Kansas and Nebraska gave a succession of dry years in the early 90's their power to rend and wreck the old party of Jefferson. And now the extension of the frontier into the Pacific has made

the question of labor unions in politics joined with that of oriental labor a rich promise and foreboding of trouble for the days to come. It is the reaching fingers that get the burns, but it is the folded arms that compose to sleep.

In 1857 Michigan was in things cultural still the frontier, and the establishment here of agricultural education handed back a firebrand into the complacent usage of the East. To speak of torches tied to foxes' tails and sent into the standing grain of the Philistines is only an agricultural figure of speech, and incompetent to express the trouble and germs of trouble thereby infused into the entire circulatory system of all American education. The agricultural colleges and the state universities which in many states have included the colleges and have been infected with their spirit are a distinctive product of the West, and have embodied a fresh and vitally new idea of education and what it is all about. Centuries of separation from the life-need that begat it had made the mechanism of education largely a formal instrument of discipline. The significance of the agricultural college for the whole trend of American education was its naïve effrontery in frankly seeing for life-training a new connection with real life-use, and this significance exceeds, in service to the nation, even the weight of the benefits wrought for the tilling and the tiller of the soil.

Within the fifty years that have followed upon the beginning of your Michigan experiment, and under the quickening influence of your venture and others that succeeded it, the whole nation of teachers has been assuming a new conception of the whole meaning of their task. It is coming to them, not through a priori reasoning, for of that they did enough before, but through observance and practice of your frontier venture. They now seem to be learning that education inheres not in what you put into a man, or what you hang onto a man, nor yet in sterilizing him, or shaving him down to a standard shape; but in giving him, such as he is, and such as his life-activities may be, the

opportunity, in and through those activities, of living his life fully and effectively and abundantly. Such education proceeds upon the recognition that no hypertrophy of mind or body is as good as plain health, that plain health is the best medicine for all disease, and that the normal exercise of plain life is the straight path to plain health. Such education will therefore address itself perforce to the real doings and exercises of real life, and its definition will be: The guided practice of life, to the end that men may live.

If now, in terms of the higher learning, all this should prove to mean that applied science is after all the true science, what does it matter? For the deeds and worth of men, the social test is and always will be the final test, and the uses and needs of man in society will in the long run form the safest guide to the truth we should seek, and for that matter presumably to the truth we can hope to find.

So much from the side of the individual, but more from the side of the community; for all this means that education, which once made teaching, preaching, healing, and litigating the sacred four, is now laying its hand upon one after another of the activities of daily human life to dignify and uplift them, to relate them to reason and truth, and rescue them from sordid slavery to superstition, ignorance, and the rule of thumb, to the end that we shall call nothing, which involves a human use, common or unclean.

Small matter indeed, this school for farmer boys at Lansing in 1857; a weird undertaking, though, and audacious, not prescribed in the books, unapproved of the elders; but behold, the stone which the builders rejected, it has become the head of the corner!

FOR THE MIDDLE WEST[1]

PRESIDENT EDMUND JANES JAMES

Members and friends of the Michigan Agricultural College:

In looking over the marvelous advance in agricultural education during the last fifty years you can utter the proud boast which Vergil put into the mouth of the great Aeneas: "Of all this I have been a great part."

And this is an era not of progress in agricultural education alone, but in all other departments as well. For he who fancies that this great movement for agricultural and industrial education has affected only colleges of agriculture and the mechanic arts has greatly underestimated its real influence. It has touched and shaped, at more points than one, the training and equipment of even our oldest and best-known centers of learning. Even such strongholds of ancient tradition as Harvard and Yale are in many respects greatly different from what they would have been had it not been for the over-increasing strength of this tendency. It is in a large sense a part of a world-movement, bound up with the inevitable advance of the democratic spirit and increasing acceptance of democratic ideals.

Higher education for the farmer and the mechanic, if it ever becomes general, will mean a new era, not simply in education, not simply in agriculture and the mechanic arts, but in the world of politics and civilization. Despotism, tyranny, one-man power, absolutism, cannot long continue in a country in which the average man is in touch with the processes and ideals of higher education. The progress of democracy was bound to bring with it the demand for an ever-rising standard, not simply

[1] Read in the enforced absence of President James by Dean Eugene Davenport.

of technical, but of general education as well, for the farmer and mechanic, and the general spread of these ideals of higher education will inevitably advance the cause of democracy.

It is difficult, of course, to formulate a satisfactory philosophy of history. It never has been done, perhaps it can never be done until history is closed, when it would have but little interest for anybody. But certainly this great movement toward democracy which is characteristic of all countries, the enormous increase in wealth, the destruction of time and space involved in the general application of steam and electricity, the ever-widening scope of popular education, all these things have worked together, each upon the other, each supplementing and strengthening the other, to bring about that marvelous revolution which has made possible this development of agricultural and mechanical education on the one hand and which has itself been enormously furthered by this very education.

The demand for special, professional education, the training of the farmer and the mechanic, is one which few people trained in the old education ever comprehended or were ever able to estimate at its true value. It has not been very long, of course, in this country since there was little faith in the value of special education on anybody's part. It was the habit, even in the sphere of the so-called learned professions, to insist that the best way for a man to learn his business was to go into practical life as soon as possible, or at any rate get into touch with practical life as closely as possible from the very beginning. The ideal of the physician was to have the boy get into the doctor's office as soon as possible and clean his horses and wash his bottles as the only reasonable road to learning therapy or preparing oneself for the practice of medicine. Entrance into a lawyer's office and the copying of legal documents and sweeping out of the office and building fires in the winter time was recognized as the practical method of preparing for admission to the bar. For neither of these professions was college education considered any

real necessity, and even in the case of a clergyman who was expected in some denominations to be an educated man, it was not felt that any study of divinity was necessary beyond the possible acquisition of an elementary knowledge of the New Testament in Greek. How much less could the public be expected to insist upon a higher standard of special education for other classes. It is almost inconceivable to us so see how slow was the progress even in such a department as that of engineering education; remarkable to see how long it took before the general public was converted to the view that if a boy was looking forward to the practice of the engineering profession there were certain schools the completion of whose curriculum was a valuable element in the preparation for this work. Even such a distinguished and enlightened educator as President Eliot has yielded to this idea of professional and special education in various lines only with great reluctance and only as he has been compelled by the actual drift of circumstances. Twenty-five years ago I heard him say in a public address in regard to the preparation of teachers that the theory of Harvard College was that if a man had the requisite knowledge that was all that was necessary. He might then acquire the actual experience as a teacher and he would succeed or fail according to his natural bent; that there was nothing further than assistance in acquiring the knowledge which the university could do for the candidate for the teaching profession.

We do not realize until we stop to think about it, how completely that idea has passed away and how today the public is ready to accept the idea that school training is good as an element in the preparation for almost any calling which you can name. We see every day some new kind of school springing into existence which is intended to satisfy this demand for specific and special preparation.

Now this great movement for agricultural education, which found an expression in the organization of this institution and

which found a larger and wider expression a short time later in the passage of the famous Morrill act, profited by this changed attitude of the public on the one hand, and it stimulated and quickened the acceptance of this general principle on the other. Now development of agricultural education has, it seems to me, in certain directions, outrun and is today in advance of the development of education in other lines, and this movement for agriculture and the mechanic arts has benefited all our higher education in several distinct and definite ways.

In the first place, this grant from the federal government, seconded as it was by subsequent grants, strengthened enormously the schools which had been started in the field of agriculture and provided for the establishment of an entirely new set of schools in states where without this assistance a generation or even two or three might have passed away before anything had been done.

Some of our American states were not, financially speaking, able to establish these schools upon the requisite scale. The federal grant distributed as I believe wisely, on the basis not of population, but of the political unit, gave an impulse to the principle of state education, which has borne fruit in every direction. We see it perhaps in the most striking way in the institution which I represent here today, and where, upon the basis of this original land grant as a direct and immediate outcome of this thrusting, if you please, of federal contribution upon the state of Illinois, has been developed what will ultimately be one of the greatest centers of scientific investigation and practical training which the world has ever seen. I do not believe that the state of Illinois would have entered upon this work for another generation and perhaps not for two if it had not been for his grant on the part of the federal government. The University of the state of Maine represents a similar development to that of Illinois, only on a somewhat smaller scale and stretched through a somewhat longer period. I am sure that in the University of

Wisconsin and the University of Minnesota, though neither institution dated its origin from this grant, the era of active development and of vital activity dates from the utilization of this federal grant. Now this federal grant for the improvement of education in agriculture and the mechanic arts was followed up some years later by a remarkable grant for the establishment and development of agricultural experiment stations. Although these institutions have in some cases been established separately from the agricultural college, yet I cannot help feeling that their influence has been one of the most specific and peculiar and remarkable forces at work in the development of this whole branch of education, and I do not know that I can do anything better to set forth my idea, even at the risk of being a little personal, than to show how this idea has worked as a ferment in the institution which I represent more particularly. I take great pleasure in emphasizing this fact more especially because we happen to have had at a critical time at the head of our College of Agriculture a man who is an alumnus and a former member of the faculty of this institution, a man whom we delight to honor, a man for whose production, if you please, we are under great obligations to you, Dean Eugene Davenport.

The establishment of the agricultural experiment station was the most distinct recognition on the part of the government that if you are going to establish higher professional education in any line, it must be upon thoroughgoing scientific investigation as the fundamental substructure, so that every man engaged in the work of teaching in the College of Agriculture is also engaged in the work of investigation, and the man who is not doing something to quicken his subject, to add to the knowledge we have of it; who is not himself striving to improve, to increase our knowledge of the subject or improve the application of it, is likely to be an arid and unfruitful teacher. Now, I think it is not too much to say that in no branch of professional education today in this country anywhere is there such complete and full recog-

nition of this principle of the absolute necessity of original investigation to the highest type of professional education as in the field of agricultural training and agricultural education. Is not this a great achievement for the farmer? Has he not in this respect set an example to every other profession in this desire to develop the great interests, social, economic, and political, intrusted to his care in our social organization? So far as I know there has been no such development in the field of engineering experimentation and engineering investigation and research, although that forms the other side of the work of this great group of institutions. The federal government has not yet made an appropriation for the engineering experiment station as it has for the agricultural experiment station. It has not yet made an appropriation for the medical laboratory, which is the medical experiment station, or for the chemical laboratory, or for the legal seminary, which would represent the center of scientific investigation and research corresponding to the agricultural experiment station. Friends, this is a great achievement for the farmer. He has laid the education of this country under a lasting debt of obligation. This principle which applies to agriculture applies to engineering exactly, applies to medicine, applies to law, applies to education, and yet the farmer has been the only one to grasp the idea and to imbed it so solidly in the fundamental structure of agricultural education that there is no danger that we shall ever depart from it.

The reflex influence of this upon the other departments has already been striking and is destined to be more striking in the future. The legislature of Illinois at its last session appropriated the sum of $50,000 per annum for a graduate school. I think the most telling argument used in the support of this project before the legislature was the simple one that this represented to a certain extent in other lines what the agricultural experiment station represented in the field of agricultural education and research.

Another way in which this great movement has influenced education in a beneficial way is to be found not simply in the underlying thought which I have already described, which seems to me fundamental and vital, but in the liberality with which the farmer has taken up this work. We are spending in the state of Illinois today more upon the education of the farmer, using that term in a large sense including the agricultural experiment station, than upon the education of any other class. We have found it easier to get money, and we pay higher average salaries to the men in our College of Agriculture, of the same grade of training and experience, than we do the men of any of the other colleges, because the farmer has determined not simply to lay as scientific and broad a foundation as I have described it, but he is determined to have competent men to give this instruction, and he recognizes that competent men cannot be had unless adequate salaries be paid. Furthermore, he recognizes that even the competent man in this modern world of education and research cannot do the best work unless he has adequate equipment. So our agricultural department is today the best-equipped department in the University of Illinois.

The immediate and direct effect of all this is very marked in the willingness of the legislature to improve and enlarge the other departments of the university. I think it would have been a long time before the people of Illinois, under existing conditions, would have made reasonable appropriations for a law school, for example, if they had not already made them for the farmers' school. I am sure that we never should have obtained the magnificent outfit for our engineering college, if it had not been that the farmers' college had been adequately cared for on the same liberal scale. There is not a single department of our institution which has not benefited, in my opinion, indirectly, nay, directly, by this marvelous movement toward higher education and this youngest of all fields—a movement directed along the soundest and most helpful lines, a movement organized in a

certain way on a higher plane than education up to this time has been organized on a large scale in the country as a whole in any other department.

You will see why as a university president, interested in this department of agricultural education only in proportion to its importance as a part of the general scheme of education, I realized the significance and the value of the great movement of which this institution is such an able exponent. We at Illinois are under special obligations to you of the Michigan Agricultural College. Eugene Davenport, the great dean of our College of Agriculture, Herbert Mumford, the organizer of our department of animal husbandry, F. R. Crane of our farm mechanics department, and Professor Goodenough of our mechanical engineering department—all these and more do we owe to you, and we are pleased to acknowledge the debt.

I congratulate you upon your great past. I congratulate you upon your claim to having been the first in the field, upon your just claim that you were not only first but that you have made good, that you have maintained a position of leadership and that you propose to maintain it for the future. I congratulate you on the outlook of the future, and I only wish that the next fifty years of your life will bear out to the fullest extent the promise of the fifty that are past.

COMMENCEMENT EXERCISES

FRIDAY AFTERNOON

COMMENCEMENT EXERCISES

After selections by the orchestra the audience of about 20,000 people joined in singing:

MENDON

Great God of Nations now to Thee
  Our hymn of gratitude we raise;
With humble heart and bending knee
  We offer Thee our song of praise.

Thy name we bless, Almighty God,
  For all the kindness Thou hast shown
To this fair land the pilgrims trod—
  This land we fondly call our own.

Here freedom spreads her banner wide,
  And casts her soft and hallowed ray;
Here Thou our fathers' steps didst guide
  In safety through their dangerous way.

We praise Thee that the gospel's light
  Through all our land its radiance sheds,
Dispels the shades of error's night,
  And heavenly blessings round us spreads.

Great God, preserve us in Thy fear;
  In danger still our Guardian be;
O spread Thy truth's bright precepts here;
  Let all the people worship Thee.

The invocation was delivered by Rev. Elisha Moore Lake, pastor of the First Baptist Church of Lansing, after which the President of the United States spoke as follows:

THE MAN WHO WORKS WITH HIS HANDS

THEODORE ROOSEVELT

The fiftieth anniversary of the founding of this College is an event of national significance, for Michigan was the first state in the Union to found this, the first agricultural college in America. The nation is to be congratulated on the fact that the Congress at Washington has repeatedly enacted laws designed to aid the several states in establishing and maintaining agricultural and mechanical colleges. I greet all such colleges, through their representatives who have gathered here today, and bid them Godspeed in their work. I no less heartily invoke success for the mechanical and agricultural schools; and I wish to say that I have heard particularly good reports of the Minnesota Agricultural High School for the way in which it sends its graduates back to the farms to work as practical farmers.

OUR EDUCATIONAL SYSTEM AND WHAT IT LACKS

As a people there is nothing in which we take a juster pride than our educational system. It is our boast that every boy or girl has the chance to get a school training; and we feel it is a prime national duty to furnish this training free, because only thereby can we secure the proper type of citizenship in the average American. Our public schools and our colleges have done their work well, and there is no class of our citizens deserving of heartier praise than the men and women who teach in them.

Nevertheless, for at least a generation we have been waking to the knowledge that there must be additional education beyond that provided in the public school as it is managed today. Our school system has hitherto been well-nigh wholly lacking on the side of industrial training, of the training which fits a man

for the shop and the farm. This is a most serious lack, for no one can look at the peoples of mankind as they stand at present without realizing that industrial training is one of the most potent factors in national development. We of the United States must develop a system under which each individual citizen shall be trained so as to be effective individually as an economic unit and fit to be organized with his fellows, so that he and they can work in efficient fashion together. This question is vital to our future progress, and public attention should be focused upon it. Surely it is eminently in accord with the principles of our democratic life that we should furnish the highest average industrial training for the ordinary skilled workman. But it is a curious thing that in industrial training we have tended to devote our energies to producing high-grade men at the top rather than in the ranks. Our engineering schools, for instance, compare favorably with the best in Europe, whereas we have done almost nothing to equip the private soldiers of the industrial army—the mechanic, the metal-worker, the carpenter. Indeed, too often our schools train away from the shop and the forge; and this fact, together with the abandonment of the old apprentice system, has resulted in such an absence of facilities for providing trained journeymen that in many of our trades almost all the recruits among the workmen are foreigners. Surely this means that there must be some systematic method provided for training young men in the trades, and that this must be co-ordinated with the public-school system. No industrial school can turn out a finished journeyman; but it can furnish the material out of which a finished journeyman can be made, just as an engineering school furnishes the training which enables its graduates speedily to become engineers.

We hear a great deal of the need of protecting our workingmen from competition with pauper labor. I have very little fear of the competition of pauper labor. The nations with pauper labor are not the formidable industrial competitors of

this country. What the American workingman has to fear is the competition of the highly skilled workingman of the countries of greatest industrial efficiency. By the tariff and by our immigration laws we can always protect ourselves against the competition of pauper labor here at home; but when we contend for the markets of the world we can get no protection, and we shall then find that our most formidable competitors are the nations in which there is the most highly developed business ability, the most highly developed industrial skill; and these are the qualities which we must ourselves develop.

DIGNITY AND IMPORTANCE OF LABOR

We have been fond as a nation of speaking of the dignity of labor, meaning thereby manual labor. Personally I don't think that we begin to understand what a high place manual labor should take; and it never can take this high place unless it offers scope for the best type of man. We have tended to regard education as a matter of the head only, and the result is that a great many of our people, themselves the sons of men who worked with their hands, seem to think that they rise in the world if they get into a position where they do no hard manual work whatever; where their hands will grow soft, and their working-clothes will be kept clean. Such a conception is both false and mischievous. There are, of course, kinds of labor where the work must be purely mental, and there are other kinds of labor where, under existing conditions, very little demand indeed is made upon the mind, though I am glad to say that I think the proportion of men engaged in this kind of work is diminishing. But in any healthy community, in any community with the great solid qualities which alone make a really great nation, the bulk of the people should do work which makes demands upon both the body and the mind. Progress cannot permanently consist in the abandonment of physical labor, but in the development of physical labor so that it shall represent more and more the work of the

trained mind in the trained body. To provide such training, to encourage in every way the production of the men whom it alone can produce, is to show that as a nation we have a true conception of the dignity and importance of labor. The calling of the skilled tiller of the soil, the calling of the skilled mechanic, should alike be recognized as professions, just as emphatically as the callings of lawyer, of doctor, or banker, merchant, or clerk. The printer, the electrical worker, the house painter, the foundry man, should be trained just as carefully as the stenographer or the drug clerk. They should be trained alike in head and in hand. They should get over the idea that to earn twelve dollars a week and call it "salary" is better than to earn twenty-five dollars a week and call it "wages." The young man who has the courage and the ability to refuse to enter the crowded field of the so-called professions and to take to constructive industry is almost sure of an ample reward in earnings, in health, in opportunity to marry early, and to establish a home with reasonable freedom from worry. We need the training, the manual dexterity, and industrial intelligence which can best be given in a good agricultural, or building, or textile, or watchmaking, or engraving, or mechanical school. It should be one of our prime objects to put the mechanic, the wage-worker who works with his hands, and who ought to work in a constantly larger degree with his head, on a higher plane of efficiency and reward, so as to increase his effectiveness in the economic world, and therefore the dignity, the remuneration, and the power of his position in the social world. To train boys and girls in merely literary accomplishments to the total exclusion of industrial, manual, and technical training tends to unfit them for industrial work; and in real life most work is industrial.

The problem of furnishing well-trained craftsmen, or rather journeymen fitted in the end to become such, is not simple—few problems are simple in the actual process of their solution—and much care and forethought and practical common-sense will be

needed, in order to work it out in a fairly satisfactory manner. It should appeal to all our citizens. I am glad that societies have already been formed to promote industrial education, and that their membership includes manufacturers and leaders of labor unions, educators and publicists, men of all conditions who are interested in education and in industry. It is such co-operation that offers most hope for a satisfactory solution of the question as to what is the best form of industrial school, as to the means by which it may be articulated with the public-school system, and as to the way to secure for the boys trained therein the opportunity to acquire in the industries the practical skill which alone can make them finished journeymen.

THE FARMER IN RELATION TO THE WELFARE OF THE WHOLE COUNTRY

There is but one person whose welfare is as vital to the welfare of the whole country as is that of the wage-worker who does manual labor, and that is the tiller of the soil—the farmer. If there is one lesson taught by history, it is that the permanent greatness of any state must ultimately depend more upon the character of its country population than upon anything else. No growth of cities, no growth of wealth, can make up for a loss in either the number or the character of the farming population. In the United States more than in almost any other country we should realize this and should prize our country population. When this nation began its independent existence it was as a nation of farmers. The towns were small and were for the most part mere seacoast trading and fishing ports. The chief industry of the country was agriculture, and the ordinary citizen was in some way connected with it. In every great crisis of the past a peculiar dependence has had to be placed upon the farming population; and this dependence has hitherto been justified. But it cannot be justified in the future if agriculture is permitted to sink in the scale as compared with other employments. We

cannot afford to lose that pre-eminently typical American, the farmer who owns his own farm.

ECONOMIC AND SOCIAL FACTORS AFFECTING RURAL POPULATIONS

Yet it would be idle to deny that in the last half-century there has been in the eastern half of our country a falling off in the relative condition of the tillers of the soil, although signs are multiplying that the nation has waked up to the danger and is preparing to grapple effectively with it. East of the Mississippi and north of the Ohio and the Potomac there has been on the whole an actual shrinkage in the number of the farming population since the Civil War. In the states of this section there has been a growth of population—in some an enormous growth—but the growth has taken place in the cities, and especially in the larger cities. This has been due to certain economic factors, such as the extension of railroads, the development of machinery, and the openings for industrial success afforded by the unprecedented growth of cities. The increased facility of communication has resulted in the withdrawal from rural communities of most of the small, widely distributed manufacturing and commercial operations of former times, and the substitution therefor of the centralized commercial and manufacturing industries of the cities.

The chief offset to the various tendencies which have told against the farm has hitherto come in the rise of the physical sciences and their application to agricultural practices or to the rendering of country conditions more easy and pleasant. But these countervailing forces are as yet in their infancy. As compared with a few decades ago, the social or community life of country people in the East compares less well than it formerly did with that of the dwellers in cities. Many country communities have lost their social coherence, their sense of community interest. In such communities the country church, for instance, has gone backward, both as a social and a religious factor. Now,

we cannot insist too strongly upon the fact that it is quite as unfortunate to have any social as any economic falling off. It would be a calamity to have our farms occupied by a lower type of people than the hard-working, self-respecting, independent, and essentially manly men and womanly women who have hitherto constituted the most typically American, and on the whole the most valuable element in our entire nation. Ambitious native-born young men and women who now tend away from the farm must be brought back to it, and therefore they must have social as well as economic opportunities. Everything should be done to encourage the growth in the open farming country of such institutional and social movements as will meet the demand of the best type of farmers. There should be libraries, assembly halls, social organizations of all kinds. The school building and the teacher in the school building should, throughout the country districts, be of the very highest type, able to fit the boys and girls not merely to live but thoroughly to enjoy and to make the most of the country. The country church must be revived. All kinds of agencies, from rural free delivery to the bicycle and the telephone, should be utilized to the utmost; good roads should be favored; everything should be done to make it easier for the farmer to lead the most active and effective intellectual, political, and economic life.

There are regions of large extent where all this, or most of this, has already been realized; and while this is perhaps especially true of great tracts of farming country west of the Mississippi, with some of which I have a fairly intimate personal knowledge, it is no less true of other great tracts of country east of the Mississippi. In these regions the church and the school flourish as never before; there is a more successful and more varied farming industry; the social advantages and opportunities are greater than ever before; life is fuller, happier, more useful; and though the work is more effective than ever, and in a way quite as hard, it is carried on so as to give more scope for well-used leisure.

My plea is that we shall all try to make more nearly universal the conditions that now obtain in the most favored localities.

PROGRESS IN AGRICULTURAL SCIENCE

Nothing in the way of scientific work can ever take the place of business management on a farm. We ought all of us to teach ourselves as much as possible; but we can also all of us learn from others; and the farmer can best learn how to manage his farm even better than he now does by practice, under intelligent supervision on his own soil in such a way as to increase his income. This is the kind of teaching which has been carried on in Texas, Louisiana, and Arkansas by Doctor Knapp, of the national Department of Agriculture. But much has been accomplished by the growth of what is broadly designated as agricultural science. This has been developed with remarkable rapidity during the last quarter of a century, and the benefit to agriculture has been great. As was inevitable, there was much error and much repetition of work in the early application of money to the needs of agricultural colleges and experiment stations alike by the nation and the several states. Much has been accomplished; but much more can be accomplished in the future. The prime need must always be for real research, resulting in scientific conclusions of proved soundness. Both the farmer and the legislature must beware of invariably demanding immediate returns from investments in research efforts. It is probably one of our faults as a nation that we are too impatient to wait a sufficient length of time to accomplish the best results; and in agriculture effective research often, although not always, involves slow and long-continued effort if the results are to be trustworthy. While applied science in agriculture as elsewhere must be judged largely from the standpoint of its actual return in dollars, yet the farmers no more than anyone else can afford to ignore the large results that can be enjoyed because of broader knowledge. The farmer must prepare for using the knowledge

that can be obtained through agricultural colleges by insisting upon a constantly more practical curriculum in the schools in which his children are taught. He must not lose his independence, his initiative, his rugged self-sufficiency; and yet he must learn to work in the heartiest co-operation with his fellows.

EDUCATIONAL AND RESEARCH WORK OF THE DEPARTMENT OF AGRICULTURE

The corner stones of our unexampled prosperity are, on the one hand, the production of raw material, and its manufacture and distribution on the other. These two great groups of subjects are represented in the national government principally by the Department of Agriculture and the Department of Commerce and Labor. The production of raw material from the surface of the earth is the sphere in which the Department of Agriculture has hitherto achieved such notable results. Of all the executive departments there is no other, not even the Post-Office, which comes into more direct and beneficent contact with the daily life of the people than the Department of Agriculture, and none whose yield of practical benefits is greater in proportion to the public money expended.

But great as its services have been in the past, the Department of Agriculture has a still larger field of usefulness ahead. It has been dealing with growing crops. It must hereafter deal also with living men. Hitherto agricultural research, instruction, and agitation have been directed almost exclusively toward the production of wealth from the soil. It is time to adopt in addition a new point of view. Hereafter another great task before the national Department of Agriculture and the similar agencies of the various states must be to foster agriculture for its social results, or, in other words, to assist in bringing about the best kind of life on the farm for the sake of producing the best kind of men. The government must recognize the far-reaching importance of the study and treatment of the problems

of farm life, alike from the social and the economic standpoints; and the federal and state departments of agriculture should co-operate at every point.

The farm grows the raw material for the food and clothing of all our citizens; it supports directly almost half of them; and nearly half the children of the United States are born and brought up on farms. How can the life of the farm family be made less solitary, fuller of opportunity, freer from drudgery, more comfortable, happier, and more attractive? Such a result is most earnestly to be desired. How can life on the farm be kept on the highest level, and where it is not already on that level, be so improved, dignified, and brightened as to awaken and keep alive the pride and loyalty of the farmer's boys and girls, of the farmer's wife, and of the farmer himself? How can a compelling desire to live on the farm be aroused in the children that are born on the farm? All these questions are of vital importance, not only to the farmer, but to the whole nation; and the Department of Agriculture must do its share in answering them.

The drift toward the city is largely determined by the superior social opportunities to be enjoyed there, by the greater vividness and movement of city life. Considered from the point of view of natural efficiency, the problem of the farm is as much a problem of attractiveness as it is a problem of prosperity. It has ceased to be merely a problem of growing wheat and corn and cattle. The problem of production has not ceased to be fundamental, but it is no longer final; just as learning to read and write and cipher are fundamental, but are no longer the final ends of education. We hope ultimately to double the average yield of wheat and corn per acre; it will be a great achievement; but it is even more important to double the desirability, comfort, and standing of the farmer's life.

We must consider, then, not merely how to produce, but also how production affects the producer. In the past we have given but scant attention to the social side of farm life. We should

study much more closely than has yet been done the social organization of the country, and inquire whether its institutions are now really as useful to the farmer as they should be, or whether they should not be given a new direction and a new impulse, for no farmer's life should lie merely within the boundary of his farm. This study must be of the East and the West, the North and the South; for the needs vary from place to place.

First in importance, of course, comes the effort to secure the mastery of production. Great strides toward this end have already been taken over the larger part of the United States; much remains to be done, but much has been done; and the debt of the nation to the various agencies of agricultural improvement for so great an advance is not to be overstated. But we cannot halt here. The benefits of high social organization include such advantages as ease of communication, better educational facilities, increased comfort of living, and those opportunities for social and intellectual life and intercourse, of special value to the young people and to the women, which are as yet chiefly to be had in centers of population. All this must be brought within the reach of the farmers who live on the farms, of the men whose labor feeds and clothes the towns and cities.

BENEFITS RESULTING FROM CO-OPERATION

Farmers must learn the vital need of co-operation with one another. Next to this comes co-operation with the government and the government can best give its aid through associations of farmers rather than through the individual farmer; for there is no greater agricultural problem than that of delivering to the farmer the large body of agricultural knowledge which has been accumulated by the national and state governments and by the agricultural colleges and schools. Nowhere has the government worked to better advantage than in the South, where the work done by the Department of Agriculture in connection with the cotton growers of the southwestern states has been phenom-

enal in its value. The farmers in the region affected by the boll weevil, in the course of the efforts to fight it, have succeeded in developing a most scientific husbandry, so that in many places the boll weevil became a blessing in disguise. Not only did the industry of farming become of very much greater economic value in its direct results, but it became immensely more interesting to thousands of families. The meetings at which the new subjects of interest were discussed grew to have a distinct social value, while with the farmers were joined the merchants and bankers of the neighborhood. It is needless to say that every such successful effort to organize the farmer gives a great stimulus to the admirable educational work which is being done in the southern states, as elsewhere, to prepare young people for an agricultural life. It is greatly to be wished that the communities whence these students are drawn and to which they either return or should return, could be co-operatively organized; that is, that associations of farmers could be organized, primarily for business purposes, but also with social ends in view. This would mean that the returned students from the institutions of technical learning would find their environment prepared to profit to the utmost by the improvements in technical methods which they had learned.

The people of our farming regions must be able to combine among themselves as the most efficient means of protecting their industry from the highly organized interests which now surround them on every side. A vast field is open for work by co-operative associations of farmers in dealing with the relation of the farm to transportation and to the distribution and manufacture of raw materials. It is only through such combination that American farmers can develop to the full their economic and social power. Combination of this kind has, in Denmark, for instance, resulted in bringing the people back to the land, and has enabled the Danish peasant to compete in extraordinary fashion, not only at home but in foreign countries, with all rivals.

KIND OF EDUCATION NEEDED

Agricultural colleges and farmers' institutes have done much in instruction and inspiration; they have stood for the nobility of labor and the necessity of keeping the muscles and the brain in training for industry. They have developed technical departments of high practical value. They seek to provide for the people on the farms an equipment so broad and thorough as to fit them for the highest requirements of our citizenship; so that they can establish and maintain country homes of the best type and create and sustain a country civilization more than equal to that of the city. The men they train must be able to meet the strongest business competition, at home or abroad, and they can do this only if they are trained, not alone in the various lines of husbandry, but in successful economic management. These colleges, like the state experiment stations, should carefully study and make known the needs of each section, and should try to provide remedies for what is wrong.

The education to be obtained in these colleges should create as intimate relationship as is possible between the theory of learning and the facts of actual life. Educational establishments should produce highly trained scholars, of course; but in a country like ours, where the educational establishments are so numerous, it is folly to think that their main purpose is to produce these highly trained scholars. Without in the least disparaging scholarship and learning—on the contrary, while giving hearty and ungrudging admiration and support to the comparatively few whose primary work should be creative scholarship—it must be remembered that the ordinary graduate of our colleges should be and must be, primarily, a man and not a scholar. Education should not confine itself to books. It must train executive power and try to create that right public opinion which is the most potent factor in the proper solution of all political and social questions. Book-learning is very important, but it is by no means everything; and we shall never get the right idea

of education until we definitely understand that a man may be well trained in book-learning and yet, in the proper sense of the word and for all practical purposes, be utterly uneducated; while a man of comparatively little book-learning may, nevertheless, in essentials have a good education.

IMPROVEMENT OF CONDITIONS AFFECTING COUNTRY LIFE

It is true that agriculture in the United States has reached a very high level of prosperity; but we cannot afford to disregard the signs which teach us that there are influences operating against the establishment or retention of our country life upon a really sound basis. The overextensive and wasteful cultivation of pioneer days must stop and give place to a more economical system. Not only the physical but the ethical needs of the people of the country districts must be considered. In our country life there must be social and intellectual advantages as well as a fair standard of physical comfort. There must be in the country, as in the town, a multiplication of movements for intellectual advancement and social betterment. We must try to raise the average of farm life, and we must also try to develop it so that it shall offer exceptional chances for the exceptional man.

Of course the essential things after all are those which concern all of us as men and women, no matter whether we live in the town or the country, and no matter what our occupations may be. The root problems are much the same for all of us, widely though they may differ in outward manifestation. The most important conditions that tell for happiness within the home are the same for the town and the country; and the relations between employer and employee are not always satisfactory on the farm any more than in the factory. All over the country there is a constant complaint of paucity of farm labor. Without attempting to go into all the features of this question I would like to point out that you can never get the right kind, the best kind, of labor if

you offer employment only for a few months, for no man worth anything will permanently accept a system which leaves him in idleness for half the year.

A WORD REGARDING THE FARMER'S FAMILY

And most important of all, I want to say a special word on behalf of the one who is too often the very hardest worked laborer on the farm—the farmer's wife. Reform, like charity, while it should not end at home, should certainly begin there; and the man, whether he lives on a farm or in a town, who is anxious to see better social and economic conditions prevail through the country at large, should be exceedingly careful that they prevail first as regards his own womankind. I emphatically believe that for the great majority of women the really indispensable industry in which they should engage is the industry of the home. There are exceptions of course; but exactly as the first duty of the normal man is the duty of being the home maker, so the first duty of the normal woman is to be the home keeper; and exactly as no other learning is as important for the average man as the learning which will teach him how to make his livelihood, so no other learning is as important for the average woman as the learning which will make her a good housewife and mother. But this does not mean that she should be an overworked drudge. I have hearty sympathy with the movement to better the condition of the average tiller of the soil, of the average wageworker, and I have an even heartier sympathy and applause for the movement which is to better the condition of their respective wives. There is plenty that is hard and rough and disagreeable in the necessary work of actual life; and under the best circumstances, and no matter how tender and considerate the husband, the wife will have at least her full share of work and worry and anxiety; but if the man is worth his salt he will try to take as much as possible of the burden off the shoulders of his helpmate. There is nothing Utopian in the movement; all that is necessary is to

strive toward raising the average, both of men and women, to the level on which the highest type of family now stands, among American farmers, among American skilled mechanics, among American citizens generally; for in all the world there is no better and healthier home life, no finer factory of individual character, nothing more representative of what is best and most characteristic in American life than that which exists in the higher type of American family; and this higher type of family is to be found everywhere among us, and is the property of no special group of citizens.

The best crop is the crop of children; the best products of the farm are the men and women raised thereon; and the most instructive and practical treatises on farming, necessary though they be, are no more necessary than the books, which teach us our duty to our neighbor, and above all to the neighbor who is of our own household. You young men and women of the agricultural and industrial colleges and schools—and, for that matter, you who go to any college or school—must have some time for light reading; and there is some light reading quite as useful as heavy reading, provided, of course, that you do not read in a spirit of mere vacuity. Aside from the great classics, and thinking only of the many healthy and stimulating books of the day, it is easy to pick out many which can really serve as tracts, because they possess what many avowed tracts and treatises do not, the prime quality of being interesting. You will learn the root principles of self-help and helpfulness toward others from *Mrs. Wiggs of the Cabbage Patch,* just as much as from any formal treatise on charity; you will learn as much sound social and industrial doctrine from Octave Thanet's stories of farmers and wageworkers as from avowed sociological and economic studies; and I cordially recommend the first chapter of *Aunt Jane of Kentucky* for use as a tract in all families where the men folks tend to selfish or thoughtless or overbearing disregard of the rights of their womankind.

Do not misunderstand me. I have not the slightest sympathy with those hysterical and foolish creatures who wish women to attain to easy lives by shirking their duties. I have as hearty a contempt for the woman who shirks her duty of bearing and rearing the children, of doing her full housewife's work, as I have for the man who is an idler, who shirks his duty of earning a living for himself and for his children, or who is selfish or brutal toward his wife and children. I believe in the happiness that comes from the performance of duty, not from the avoidance of duty. But I believe also in trying, each of us, as strength is given us, to bear one another's burdens; and this especially in our own homes. No outside training, no co-operation, no government aid or direction can take the place of a strong and upright character; of goodness of heart combined with clearness of head, and that strength and toughness of fiber necessary to wring success from a rough work-a-day world. Nothing outside of home can take the place of home. The school is an invaluable adjunct to the home, but it is a wretched substitute for it. The family relation is the most fundamental, the most important of all relations. No leader in church or state, in science or art or industry, however great his achievement, takes the place of the mothers, "who are the first of sovereigns and the most divine of priests."

CONFERRING OF DEGREES

Following President Roosevelt's address, Professor Warren Babcock formally announced the completion of their college work by the following persons, ninety-six in number:

CLASS OF 1907

Allen, W. B., *e*
Andrews, Helen, *w*
Angell, Anna, *w*
Angell, I. D., *e*
Ashley, Helen, *w*
Bailey, Eva, *w*
Baker, J. L., *a*
Beckwith, H. R., *a*
Benham, Rachel, *w*
Boulard, E. N., *a*
Brass, L. C., *e*
Brown, G. A., *a*
Brown, H. L., *a*
Burley, G. A., *e*
Button, J. C., *a*
Cade, C. M., *e*
Campbell, B. G., *e*
Canfield, R. S., *e*
Carpenter, A. J., *e*
Clise, B. B., *a*
Craig, Myrtle, *w*
DeLange, W. W., *e*
Delzell, Ruth E., *w*
Dorland, L. R., *f*
Doty, S. W., *a*
Dudley, G. C., *e*
Ellis, D. H., *a*
Ellis, George H., *e*
Fowler, E. C., *a*
Gasser, W. W., *e*
Glazier, H. I., *e*
Goetz, C. H., *f*
Goldsmith, D. R., *e*
Goldsmith, P. V., *a*
Gould, F. A., *e*
Granger, C. M., *f*
Gregg, O. I., *a*
Grover, E. L., *a*
Hart, W. L., *a*
Hayden, L. N., *e*
Hayes, G. B., *e*
Heinrich, G. A., *e*
Hitchcock, L. B., *e*
Hitchcock, W. W., *e*
Hudson, R. S., *a*
Johnson, M. F., *e*
Johnson, W. E., *e*
Kinney, Inez M., *w*
Kramer, H. T., *e*
Kratz, O. A., *e*
Krause, E. J., *a*
Krentel, Calla, *w*
Lilly, S. B., *e*
Liverance, W. B., *a*
McHatton, T. H., *a*
McNaughton, C. P., *a*
Martin, L. Belle, *w*
Miller, Violet, *w*
Minard, R. F., *e*
Moomaw, D., *e*
Myers, J. L., *e*
Palacio, A. G., *a*
Parsons, I. E., *a*
Peck, C. B., *e*
Pennell, R. L., *a*
Perry, N. C., *a*
Piper, W. E., *e*
Pokorny, Ida, Mrs., *w*
Post, O. C., *e*
Pratt, A. C., *e*
Rinkle, L. G., *a*
Robinson, E. P., *a*
Roby, Edith, *w*
Rounds, Florence, *w*
Rowe, C. L., *e*
Seiler, R., *e*
Shuttleworth, P. H., *a*
Smith, G. W., *a*
Smith, L. E., *e*
Stewart, B. C., *e*
Stone, H. G., *a*
Taylor, E. H., *e*
Thatcher, F. E. N., *e*
Towne, E. A., *e*
Towner, A. A., *a*
Van Alstine, E., *a*
Van Halteran, A. S., *e*
Verran, G., *e*
Waite, R. H., *a*
Warden, W., *a*
Weeks, H. B., *a*
White, O. K., *a*
Wilcox, J. C., *a*
Willson, E. A., *a*
Wilson, A. W., *e*
Wright, L. H., *e*

The class, seated immediately below the speaker's platform,

arose, formed in line, and passed across the platform, receiving the diplomas from the hand of President Roosevelt.

Of those graduating, thirty-six completed the work in agriculture, three in forestry, forty-three in engineering, and fourteen in home economics.

After the presentation of diplomas to the graduating class by President Roosevelt, the honory degree of Doctor of Science (D.Sc.) was conferred by President Jonathan Le Moyne Snyder upon each of the following gentlemen:

WILLIAM ARNON HENRY, President of the Agricultural College of Wisconsin.
CHARLES FAY WHEELER, of the United States Department of Agriculture.
HENRY CLAY WHITE, President of the Agricultural College of Georgia.
CHARLES FRANKLIN CURTISS, Dean of the Agricultural Department and Director of the Experiment Station of the State College of Iowa.
THOMAS FORSYTH HUNT, Dean of the Agricultural Department and Director of the Experiment Station of Pennsylvania State College.
WILLIAM WARNER TRACY, of the United States Department of Agriculture.
GIFFORD PINCHOT, Chief Forester of the Department of Agriculture of the United States.

The honorary degree of Doctor of Laws (LL.D.) was conferred upon each of the following gentlemen:

JAMES BURRILL ANGELL, President of the University of Michigan.
EUGENE DAVENPORT, Dean of the Agricultural College and Director of the Experiment Station of the University of Illinois.
WINTHROP ELLSWORTH STONE, President of the Purdue University.
HERBERT WINSLOW COLLINGWOOD, Editor of the "Rural New Yorker."
MORTIMER ELWYN COOLEY, of the Engineering Department of the University of Michigan.
WHITMAN HOWARD JORDAN, Director of the Experiment Station at Geneva, N. Y.
ENOCH ALBERT BRYAN, President of the Agricultural College of the State of Washington.
ROLLA CLINTON CARPENTER, of the Engineering Department of Cornell University.
JAMES WILSON, Secretary of the Department of Agriculture.

As each of the gentlemen to receive an honorary degree was announced by Professor Babcock, he was escorted to the front

of the platform by Dr. Thomas C. Blaisdell, acting as College Herald, and was presented to President Snyder, who, in conferring the degrees, spoke as follows:

William Arnon Henry:

It falls to the lot of few men to render to the people of their state such valuable service as you have rendered to the citizens of Wisconsin. Starting with very little material equipment, you have, by your untiring energy, built up a great agricultural school and an experiment station of the first rank. As an author and as a contributor to the agricultural press, you have rendered untold service to the stockmen of the world. The oldest agricultural college of this country congratulates you and the people of your state on your great achievements, and, through me, confers upon you the degree of Doctor of Science and presents you with its diploma.

Charles Fay Wheeler:

Your training and skill as a systematic botanist entitles you to special recognition by your Alma Mater. On recommendation of the faculty and by the authority of the State Board of Agriculture, to whom you rendered valuable services for many years as a member of this faculty, I confer upon you the degree of Doctor of Science and present you with the diploma of the College.

Henry Clay White:

You have, as an investigator and administrator, rendered great service, both to agricultural science and to agricultural education. The land-grant colleges owe you a debt of gratitude for your zeal and successful efforts in their behalf before the national Congress. The state in which you hold a responsible position as the president of its agricultural college, and in which you wield a wide influence, has surpassed all other states in the establishment of agricultural secondary schools. As a scientist and as a man of great ability in public affairs, this College confers upon you the degree of Doctor of Science, and presents you with its diploma.

Charles Franklin Curtiss:

This College confers upon you the degree of Doctor of Science in recognition, not only of your ability as a scientist and administrator, as is evidenced in the rapid development of the Agricultural Department and Experiment Station over which you preside, but also in recognition of the great service which you have rendered to the interests of live-stock husbandry in the Middle West. I also present you with its diploma.

Thomas Forsyth Hunt:

In your chosen field you early carried forward experiments which have resulted in great good to the farmers of the country. Your textbook on the teaching of agronomy placed for the first time the knowledge of this subject in pedagogical form. You have been a very successful teacher of young men. Your work as an investigator, as an author, and as a teacher prompts this College to confer upon you, through me, the degree of Doctor of Science.

William Warner Tracy:

Loyal son of this College, you have gained by your persistent efforts through many years a high rank in that field of science which you have made your life work. By your discoveries you have broadened the field of human knowledge. For these reasons your Alma Mater takes great pleasure in conferring upon you the degree of Doctor of Science, and in presenting you with its diploma.

Gifford Pinchot:

A graduate of Yale University, a student of forestry for years in the great universities of the Old World, and for the past nine years chief forester of the Department of Agriculture, Washington: In recognition of your ability as a student of great forestry problems, of your bold initiative, and of your courageous and sane methods of administration, we confer upon you the degree of Doctor of Science, and present you with the appropriate diploma of the College.

James Burrill Angell:

This College confers upon you an honorary degree, not with the expectation that it will add to the many similar honors which you have received from the great universities of the country, but that we may express to you our appreciation and sincere gratitude for the work you have done for the people of the state and for the kindly feeling and most helpful spirit that you have always shown toward this institution. This College honors itself in conferring upon you, the first citizen of Michigan, as well as its greatest educator, the degree of Doctor of Laws, and in presenting you with its diploma.

Eugene Davenport:

In you this College desires to honor today one of its sons who has shown rare ability as an organizer and administrator. You have developed with wonderful rapidity a great agricultural school which, in years to come, must render valuable service to scientific and practical agriculture. I take pleasure, on the nomination of the faculty and in behalf of the Board of

Control, in conferring upon you the degree of Doctor of Laws, and in presenting to you the diploma of the College.

Winthrop Ellsworth Stone:

In recognition of the great service you have rendered to science as an investigator and to technical education as president of one of the leading land-grant colleges of this country, this institution confers upon you the degree of Doctor of Laws, and presents to you its diploma.

Herbert Winslow Collingwood:

As you have for many years rendered most valuable service to agriculture as editor of one of its leading journals, I have the pleasure of conferring upon you, in behalf of your Alma Mater, the degree of Doctor of Laws, and of presenting you with its diploma.

Mortimer Elwyn Cooley:

In recognition of your services as an expert in determining railway values, of your executive ability in developing the great engineering department of our university, and of your reputation as an engineer, on the recommendation of our faculty, by the authority of the Board of Control, I confer upon you the degree of Doctor of Laws, and present you with the diploma of the College.

Whitman Howard Jordan:

You have, by your work as an investigator, added much to the store of agricultural knowledge; while as an administrator you have developed, by your rare ability, the great experiment station of the Empire State, which stands today without a peer. The College confers upon you the degree of Doctor of Laws, and presents to you its diploma.

Enoch Albert Bryan:

Upon you, conspicuous for moral courage, a scholar, a teacher of power, a builder of a great agricultural college in the far Northwest, on recommendation of the faculty and by the authority of the State Board of Agriculture, I confer the degree of Doctor of Laws, and present to you the diploma of the College.

Rolla Clinton Carpenter:

After graduating from this institution, you rendered it valuable service for many years as a member of its faculty. You have since served in a broader field as a member of the faculty of a renowned university. Your engineering skill and your ability as a designer of great construction render you worthy of special recognition. Your Alma Mater has great pleasure in conferring upon you the degree of Doctor of Laws, and in presenting you with the diploma of the College.

James Wilson:

You have been a mighty force in the agricultural world during the past ten years. The great department over which you so ably preside has made wondrous strides. You have assembled a large body of scientists who are rapidly extending the boundaries of human knowledge and making it more easy each day for the farmer to work in harmony with nature's laws. You have done more than any other man to popularize agriculture. This College has great pleasure in conferring upon you the degree of Doctor of Laws, and in presenting you with its diploma.

With the overture from Cyrano, rendered by the Bach Orchestra, the official program of the Semi-Centennial Celebration came to a close.

In the evening each of the literary societies of the College held a banquet and reunion, at which many of the alumni renewed and reviewed old acquaintances and pleasures, thus closing and consecrating the Semi-Centennial Celebration at the altar of friendship.

CONGRATULATORY ADDRESSES

PRESENTED BY

DELEGATES FROM OTHER INSTITUTIONS AND LEARNED SOCIETIES

To the State Board of Agriculture of the State of Michigan, and the President and Faculty of the Michigan Agricultural College, Greeting:

The Board of Trustees, the President, and the Faculty of Cornell University tender their cordial congratulations on the completion of the first half century of the existence of the Michigan Agricultural College. The oldest existing college of agriculture in the United States, it has been a leader in the teaching of Agriculture and in experiment and investigation; and its successes in all these fields have been noteworthy. Its varied experiments in pedagogy as applied to agriculture have been of inestimable value to all later effort. And the Faculty of the College have included teachers whose influence in the training of men for younger institutions has been potent and widespread.

Cornell University trusts that the future of the Michigan Agricultural College will realize the hopes and aspirations of its founders, and that its measure of success will continue to increase.

J. G. Schurman
President

Wm. A. Hammond
Secretary of the Faculty

Ithaca, New York
May, 1907

PHOTOGRAPHIC FACSIMILE REDUCED) OF THE GREETINGS FROM CORNELL UNIVERSITY

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AMERICAN INSTITUTE OF ELECTRICAL ENGINEERS

The American Institute of Electrical Engineers extends congratulations to the Michigan Agricultural College on the completion of her fifty years of splendid service through high achievements in science and the mechanic arts and also through the many distinguished sons she has furnished to disseminate her fruitful teachings throughout the land.

ENGINEERS' BUILDING, NEW YORK, N. Y.
May 31, 1907

THE AMERICAN SOCIETY OF MECHANICAL ENGINEERING

PRESENTED BY DELEGATE PAUL M. CHAMBERLAIN

To the President and Board of Control of the Michigan Agricultural College:

The President of the American Society of Mechanical Engineers has appointed us as honorary vice-presidents to represent the society on the occasion of this the fiftieth anniversary of your institution.

On behalf of the American Society of Mechanical Engineers we have the distinguished honor to present to the president and Board of Control of the Michigan Agricultural College the congratulations of the society on this occasion which marks an era of prosperity in the great industries fostered by your institution under the wise and beneficent provisions of federal and state legislation.

The society recognizes the Michigan Agricultural College as the pioneer in a field of education which constitutes the very bulwark of our nation's prosperity, and cherishes the hope that the same wise administration of the affairs of your institution may continue in the future to be an example to be emulated by your sister institutions as it has been in the past.

The society extends its greetings and acknowledgments to those who, as directors, teachers, investigators, and alumni, have brought to your institution the great distinction which it enjoys, and which is now being commemorated.

The society is glad of the opportunity to join with you on so great a festal occasion and to take part with others in extending felicitations.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS
FRANK E. KIRBY
MORTIMER E. COOLEY
ALEX. DOW
Honorary vice-presidents

29 WEST THIRTY-NINTH STREET, NEW YORK
May 31, 1907

CLARK UNIVERSITY

PRESENTED BY DELEGATE PRESIDENT E. G. LANCASTER

To the President and Board of Control of Michigan Agricultural College:

DEAR SIRS: President E. G. Lancaster of Olivet College, who is an alumnus of Clark University, has been appointed to represent Clark University at the celebration of the Fiftieth Anniversary of Michigan Agricultural College, this note constituting his credentials.

He bears you the most cordial greetings and hearty felicitation of Clark University on this auspicious occasion.

With all good wishes for an ever-brightening future, I am,

G. STANLEY HALL
President of Clark University

WORCESTER, MASSACHUSETTS
May 23, 1907

CLEMSON AGRICULTURAL COLLEGE OF SOUTH CAROLINA

FROM PRESIDENT P. H. NELL

It gives me pleasure to have our institution represented on this most auspicious occasion, and as president of Clemson College I desire to extend to the Michigan Agricultural College my hearty congratulations for the splendid history of the past made by the Michigan College and to express the hope that there is a bright future before the institution.

COLORADO AGRICULTURAL COLLEGE AND EXPERIMENT STATION

PRESENTED BY DELEGATE DIRECTOR L. G. CARPENTER

The Colorado Agricultural College and Experiment Station, peculiarly a child of the Michigan Agricultural College, extends its cordial greetings at the Semi-Centennial Anniversary.

CONNECTICUT AGRICULTURAL COLLEGE

PRESENTED BY DELEGATE L. A. CLINTON

To Michigan Agricultural College:

Recognizing Michigan Agricultural College as the pioneer in agricultural education, at a time when such education was not popular or even understood; recognizing it as the institution after which many other similar colleges have been modeled, and recognizing that it has served as a training-school for presidents and professors of such other colleges: We, the faculty of The Connecticut Agricultural College, extend most hearty greetings to this justly honored institution upon the fiftieth anniversary of its founding—full of confidence that in the years to come it will continue to be as successful as in the past, and will always stand for what is best and truest in agricultural education.

L. A. CLINTON
A. G. GULLEY
E. O. SMITH
Faculty Committee on Congratulations to Michigan Agricultural College

CORNELL UNIVERSITY

PRESENTED BY DELEGATE DEAN L. H. BAILEY

To the State Board of Agriculture of the State of Michigan, and the President and Faculty of the Michigan Agricultural College, Greeting:

The Board of Trustees, the president, and the faculty of Cornell University tender their cordial congratulations on the completion of the first half-century of the existence of the Michigan Agricultural College. The oldest existing college of agriculture in the United States, it has been a leader in the teaching of agriculture and in experiment and investigation; and its successes in all these fields have been noteworthy. Its varied experiments in pedagogy as applied to agriculture have been of inestimable value to all later effort. And the faculty of the College have included teachers whose influence in the training of men for younger institutions has been potent and widespread.

Cornell University trusts that the future of the Michigan Agricultural College will realize the hopes and aspirations of its founders, and that its measure of success will continue to increase.

J. G. SCHURMAN, *President*

[SEAL] WM. A. HAMMOND,
Secretary of the Faculty

ITHACA, N. Y.
May, 1907

THE GEOLOGICAL SOCIETY OF AMERICA

The Geological Society of America presents heartiest good wishes and felicitations.

GEORGE WASHINGTON UNIVERSITY

Dr. Richard Harlan of the George Washington University brings from that university to the Michigan Agricultural College, upon the completion of a half-century of notable service to the nation, hearty felicitations and earnest wishes for great prosperity in the future.

HARVARD UNIVERSITY

PRESENTED BY DELEGATE DR. THEODORE LYMAN

Harvard University to the Michigan State Agricultural College, Greeting:

The president and fellows of Harvard College send their hearty congratulations to the State Board of Agriculture of Michigan and to the president and faculty of the State Agricultural College on the Fiftieth Anniversary of its foundation. Anticipating by several years the establishment of the land-grant colleges, the Michigan Agricultural College performed the high service of a pioneer in both the literal and the figurative sense of the word. The steady development of the institution, when once the early days of hardship and experiment were over, and the attainment of its present prosperity and usefulness offer a striking example of foresight and intelligent public spirit. May the Michigan Agricultural College continue to prosper through continued usefulness not only to the state but also to the agricultural and mechanical sciences throughout the world.

The President and Fellows of Harvard College, by

[SEAL] JEROME D. GREENE, *Secretary*

HILLSDALE COLLEGE

PRESENTED BY DELEGATE PRESIDENT JOSEPH W. MAUCK

Hillsdale College, the oldest daughter in education of the church in Michigan, greets and congratulates the Michigan Agricultural College, one of the oldest and fairest daughters of the state, and offers a joyous and prayerful Godspeed, with the sentiment: A complete separation of the organic church from the state, but a more intimate union of vital religion with the work of both state and church.

INDIANA UNIVERSITY

PRESENTED BY DELEGATE PRESIDENT BRYAN

Lux et veritas, "light and truth." Let them be guides to thee as to me. The greetings of an octogenarian of the Old Northwest to a semicentenarian.

KANSAS STATE AGRICULTURAL COLLEGE

PRESENTED BY DELEGATE PRESIDENT E. R. NICHOLS

The Kansas State Agricultural College sends greetings and congratulations to Michigan Agricultural College on her golden anniversary. We wish to acknowledge our appreciation and indebtedness to our mother institution, for so we regard her, who has been our model and who has furnished us so many illustrious men.

KENTUCKY EXPERIMENT STATION

PRESENTED BY DELEGATE DR. M. A. SCOVELL

The Kentucky Experiment Station sends greetings and felicitations to the Michigan Agricultural College on its fiftieth anniversary and congratulates it on its fifty years of fruitful work and wishes it even a brighter and a still more fruitful future, and ever-increasing success.

LAKE ERIE COLLEGE

PRESENTED BY DELEGATE MISS INGA M. K. ALLISON

The trustees, the president, the faculty, and the students of Lake Erie College extend to the Agricultural College of Michigan their heartiest congratulations upon this the Semi-Centennial Celebration, and upon fifty years of honorable and useful service to the state and nation.

MASSACHUSETTS AGRICULTURAL COLLEGE

PRESENTED BY DELEGATE PRESIDENT KENYON L. BUTTERFIELD

Massachusetts, through its agricultural college, sends congratulations to the Michigan Agricultural College on the occasion of its fiftieth anniversary, and recalls with pride the fact that the Commonwealth of Massachusetts and its famous university, Harvard, were respectively the native state and the Alma Mater of that great and far-seeing man, Joseph R. Williams, the first president of the Michigan Agricultural College.

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

The Massachusetts Institute of Technology, through its delegate, Professor George W. Patterson, congratulates the Michigan Agricultural College on this most happy anniversary.

MIAMI UNIVERSITY

PRESENTED BY DELEGATE BENJAMIN MARSHALL DAVIS

Greetings and congratulations to Michigan Agricultural College from Miami University.

MICHIGAN ACADEMY OF SCIENCE

Professor James B. Pollock presents the congratulations of the Michigan Academy of Science.

NORTHWESTERN UNIVERSITY

PRESENTED BY DELEGATE PRESIDENT A. W. HARRIS

Northwestern University to the President and Board of Control of the Michigan Agricultural College, Greetings and Congratulations:

Your institution was a pioneer and has continued to be a leader in a branch of educational work, the far-reaching value of which each year is recognized more fully. The American people are an agricultural people and they cherish ideals of popular education. It is therefore doubly needful in this country that agriculture and education should go hand in hand. That institution, then, which, like your own, is training men and women to develop the resources of nature at first hand is doing a service of inestimable benefit both to the nation as a whole and to the cause of education.

Northwestern University upon the occasion of your Fiftieth Anniversary expresses its high appreciation of what your college has already accomplished and wishes for it a career of even greater prosperity and usefulness.

ABRAM WINEGARDNER HARRIS
President of the University

[Seal] FRANK P. CRANDON,
Secretary of the Board of Trustees

EVANSTON, ILL.
May 14, 1907

OBERLIN COLLEGE

PRESENTED BY DELEGATE DEAN CHARLES E. ST. JOHN

Oberlin College begs to extend her congratulations to Michigan Agricultural College on the completion of fifty years of valuable service.

OLIVET COLLEGE

PRESENTED BY DELEGATE PRESIDENT E. G. LANCASTER

To the President and Board of Trustees of Michigan Agricultural College:

Olivet College sincerely congratulates the Michigan Agricultural College on her magnificent work for the state of Michigan during the past half-century, and extends to her most cordial greetings and best wishes on this the happy occasion of her fiftieth anniversary.

E. G. LANCASTER, *President*

POMONA COLLEGE

Pomona College, Claremont, California, through her delegate, Dr. Albert J. Cook, extends hearty greetings to the Michigan Agricultural College, and congratulates her on the long and admirable service which she has rendered to education, and especially to agriculture. Her ideals have always been high, and she has always rung true to the cause which the Morrill bill sought to promote. We send cordial felicitations, because of the able men which she has sent forth—men who have done royal service to agriculture and to agricultural education. We extend our most hearty good wishes, that the future may be still more bright and prosperous.

MAY 31, 1907

PURDUE UNIVERSITY

PRESENTED BY DELEGATE PRESIDENT WINTHROP ELLSWORTH STONE

Purdue University extends to its sister and neighbor, the Michigan Agricultural College, its hearty congratulations upon the completion of a half-century of notable achievement in education, and expresses the sincere hope that her influence and usefulness may never be diminished.

RHODE ISLAND COLLEGE OF AGRICULTURE AND MECHANIC ARTS

PRESENTED BY DELEGATE PRESIDENT HOWARD EDWARDS

To the Trustees, Faculty, and Students of Michigan Agricultural College:

There are certain times in the life of an institution, as in that of a person, when the well-directed labors of years receive their meed of congratulation. And so the faculty of the Rhode Island College of Agriculture and Mechanic Arts is glad to send its greetings to the Michigan Agricultural College on the occasion of its Semi-Centennial Anniversary.

It should indeed be a year of jubilee for the College, which has been a pioneer in introducing and developing a new form of education to meet the varied needs of a growing and diversified people. Without precedents to guide it, uncertain of its relation to other state institutions, amid many perplexities and discouragements, it succeeded in solving the problems of how to co-ordinate the training of brain and hand and dignify industrial education. All similar institutions are thus its debtors, and may well unite in paying tribute to fifty years of faithful service. That the past work is but an earnest of even greater future success is the sincere wish of a sister college.

Very truly,

[Seal] HARRIET L. MERROW
Secretary of the Faculty

MAY 24, 1907

SOCIETY FOR THE PROMOTION OF AGRICULTURAL SCIENCE

PRESENTED BY DELEGATE PRESIDENT HENRY PRENTISS ARMSBY

The Society for the Promotion of Agricultural Science extends to the president, trustees, and faculty of the Michigan Agricultural College its congratulations upon the completion of fifty years of notable service to the cause of agricultural education.

It recalls with pride the fact that one of its founders, and its first president, Dr. W. J. Beal, was and still is a professor in the Michigan Agricultural College, and that many of its most distinguished members have been graduates of that institution and members of its faculty.

That the achievements of the half-century just closed may be but the prelude to more magnificent deeds in the half-century to come is the confident hope of this society.

STATE COLLEGE OF WASHINGTON

The New Northwest sends greetings to the child of the Old Northwest. The State College of Washington presents its congratulations and felicitations to the Michigan Agricultural College on the occasion of the fiftieth anniversary of its establishment. The distinguished service to the commonwealth and to humanity rendered by the College during the past fifty years will forever continue to be an inspiration to men and to states.

May the oak tree, emblematic of long life, strength, beauty, and usefulness henceforth be inscribed on your coat of arms.

For the Board of Regents and Faculty.

E. A. BRYAN, *President*

TEXAS AGRICULTURAL AND MECHANICAL COLLEGE

Professor J. W. Carson bears to the Michigan Agricultural College the congratulations of the Texas Agricultural and Mechanical College, with the best wishes of its board of directors and faculty.

TUSKEGEE INSTITUTE

Tuskegee Normal, Agricultural, and Industrial Institute, by its delegate, Professor Charles Walters Green, in charge of practical agriculture, felicitates Michigan Agricultural College on the completion of its half-century of work for the world.

UNIVERSITY OF CALIFORNIA

Dr. Benjamin Ide Wheeler of the University of California presents a congratulatory letter from Professor E. W. Hilgard representing the College of Agriculture at Berkeley.[1]

[1] See page 224.

UNIVERSITY OF GEORGIA

PRESENTED BY DELEGATE HENRY CLAY WHITE

The first established State University in America offers its fraternal and cordial felicitations to the Michigan Agricultural College, the first established agricultural college in America, upon the completion of a half-century of conspicuous and eminent science in kindred endeavors for the moulding of worthy American citizens and the maintenance of worthy American ideals.

UNIVERSITY OF HALLE

PRESENTED BY DELEGATE DR. K. STERNBRÜCK, WHO SPOKE, FIRST IN ENGLISH AND THEN IN GERMAN, AS FOLLOWS:

His Magnificence and the Senate of the University of Halle, in which the agricultural science holds an eminent place and to which Julius Kuhn has devoted all his life and blessed work, has charged me to give Michigan Agricultural College his congratulations and those of the university on this festival day.

Michigan Agricultural College applied itself to experimental science at a time when on this ground even in Europe the very first timid attempts were made in a rather limited way, and by this means it has become as important and typical for the development of agricultural teaching as Halle for Germany.

Its first president, Hon. Jos. R. Williams, maintained in his opening address that all disciplines being connected with agricultural science in any way or having any importance to it, ought to be cultivated.

Michigan Agricultural College can boast of having had a great number of learned men well known in the world of science. In all the branches of agricultural and natural science, especially in attacking stock murrains, noxiousnesses in the vegetable kingdom, as to dairy, entomology, bacteriology, cultivation of corn, and horticulture the teachers of Michigan Agricultural College have been particularly successful from the beginning up to our date. By establishing substations, the College has done an elaborate work in transferring scientific results into practice, and has highly contributed to the splendid agriculture of Michigan State.

The University of Halle, the representative of which I have the honor to be, wishes that the Michigan Agricultural College may continue in this brilliant manner developing the agricultural science.

It gives me pleasure to present to you this *tabula congratulatonia*[1] and my best wishes.

[1] See p. 298.

[After handing the tabula congratulatonia to the President, Dr. Steinbrück continued:]

Und nun lassen Sie mich in deutscher Sprache meine aufrichtigsten Wünsche hinzufügen, dass die innigen Beziehungen, welche zwischen beiden grossen so eng verwandten und befreundeten Nationen, Deutschland und den Vereinigten Staaten, sowohl in wirtschaftlicher als auch besonders in wissenschaftlicher Hinsicht, in befreundender Wechselwirkung bestehen, immer inniger werden möchten. Die Wissenschaft kennt keine nationalen Grenzen. Dieselben Aufgaben beschäftigen hunderte der besten Köpfe und Denker diesseits und jenseits des Oceans. Ihre Lösung kommt gleichmässig allen Kulturvölkern zu gute. In hohem Mass ist das bei der Landwirtschaftwissenschaft der Fall. Die Landwirtschaft ist ja von besonderer Bedeutung für die beiden Länder, da sie in beiden einen hervorragenden Platz in der gesammten Volkswirtschaft einnimmt. Auch heute noch hat das Wort Friedrich des Grossen Geltung:

Die Landwirtschaft ist die erste aller Künste. Ohne sie gäbe es keine Kaufleute, Dichter und Philosophen. Nur das ist wahrer Reichtum, was die Erde hervorbringt.[1]

[1] And now let me add in the German language my most sincere wishes that there may be ever-increasing stability in those intimate and friendly relations which bind together with reciprocal benefit to science and agriculture, the two great nations so closely allied by social inheritance, Germany and the United States. Science knows no national boundaries. The same problems employ the best minds on both sides of the ocean. The solution of these problems is of equal benefit to all civilized peoples. To a very high degree is this true of agriculture, a science of especial importance to our two countries, since it occupies a prominent place in our respective systems of political economy. Today the words of Frederick the Great have as much truth as when he spoke them:

"The tilling of the soil is the foremost in all arts. Without it there would be no merchants, poets, and philosophers. That alone which the earth brings forth is true wealth."

TABULA CONGRATULATONIA

QVOD BONVM FELIX FAVSTVMQVE SIT
CELEBERRIMO COLLEGIO AGRICVLTVRAE STVDIIS
DESTINATO CIVITATIS MICHIGAN TRANSMARINAE
QVOTQVOT IN CIVITATIBVS FOEDERATIS AMERICAE SEPTENTRIONALIS EXSTANT HVIVS GENERIS COLLEGIORVM OMNIVM ANTIQVISSIMO
OMNIVMQVE EXEMPLO
CVI COLLEGIO PER DECEM LVSTRORVM SERIEM QVI PRAEFVERVNT VIRI
APVD OMNES CVLTIORES NATIONES CLARO
NOMINE NOTABILES FIDELITER ET STRENVE ID TENVERVNT QVOD EORVM
PRIMVS VIR HONORATISSIMVS JOSEPHVS
R. WILLIAMS IN AVSPICANDIS COLLEGII INITIIS PROCLAMAVERAT OMNES
DISCIPLINAS SCIENTIASQVE QVAE AD
STVDIA REI AGRARIAE PROMOVENDA ALIQUO MODO FACERENT HAC QVASI
DOMESTICA SEDE CONDENDAS SOLLERTIQVE
INDVSTRIA VELVTI IN VNVM CORPVS CONSOCIANDAS ESSE
QVO IN COLLEGIO ET A STVDIORVM PRAESIDIBVS ET ABIIS QVI EORVM
INSTITVTIONE FRVEBANTVR QVID AD

AVGENDOS AGRORVM PROVENTVS DEFENDENDAQVE PERICVLA
AGRICOLAE LABOREM INFESTANTIA COMMODE
ADHIBERI POSSET MEDITANDO EXPERIVNDOQVE QVAERI NVLLO TEMPORE
DESITVM EST MVLTAQVE DE OPPRIMENDIS
PECVDVM PESTILENTIIS DE ARCENDIS EXTINGVENDISQVE ANIMALIBVS
MINVTIS PLANTARVM EVERSORIBVS DE RE
LACTARIA ET FRVMENTARIA PROSPERIVS EXERCENDIS INNVMERISQVE ALIIS
QVAESTIONIBVS FELICISSIME ATQVE
SALVBERRIME EXPLORATA SVNT QVORVM COGNITIO STATIONIBVS PER
TOTAM REGIONEM APTISSIME DISPOSITIS LATE
PROPAGATA EFFECIT VT QVICQVID IN LABORATORIO REPERTVM ERAT
CELERRIME IPSI AGRICOLAE ET PECVARIO
PRODESSET MAGNVMQVE INDE INCREMENTVM CAPERET TOTIUS CIVITATIS
RES RVSTICA
SCHOLAE VT SCIENTIAE ITA IPSI REI AGRARIAE VSVI CVM OMNI LAVDE
VBERRIMOQVE FRVCTV INSERVIENTI
SACRA SEMISAECVLARIA
DIE XIII MENSIS MAII ANNI MDCCCCVII
SOLLEMNITER PER AGENDA
EX ANIMI SENTENTIA GRATVLANTVR
PRO EIVS SALVTE ET FELICITATE PIA VOTA NVNCVPANT
FIDEM VOLVNTATEMQVE SVAM TESTANTVR
VNIVERSITATIS FRIDERICIANAE HALENSIS CVM VITEBERGENSI
CONSOCIATAE RECTOR ET SENATVS
CAROLUS ROBERT[1]

(SIGILLVM)

[1] For translation see next page.

TRANSLATION OF TABULA CONGRATULATONIA

Prosperity, happiness, and good auspices to the most celebrated agricultural college of the trans-oceanic state of Michigan, in the United States of North America, the oldest among the institutions of its kind and serving as a model to all of them.

In this college men, whose glorious names are known among all civilized nations, have for ten series of semidecades most faithfully and strenuously sustained the idea expressed by the greatest (first) among them, a man of highest distinctions, Joseph R. Williams, at the inauguration of the institution: namely, that all systems of knowledge and all sciences, to any degree participating in the promotion of the science of agriculture, in this very way lead to the preservation of the home and to the unity of all skilled industries into a single body.

The teachers and students of this institution at no time ceased to investigate, by way of reasoning and experimentation, problems connected with the increased production of the fields and with the combating of the dangers menacing the work of the tiller of the soil. And many problems dealing with the defying of pests upon cattle, with the checking and the extermination of minute animal forms obnoxious to plants, with the management of the dairy and the fertility of the soil, and numberless others have been solved in a most successful and glorious way.

The results of these investigations are broadly disseminated by the experiment stations, which are in a most able manner distributed all over the country, so that the discoveries made in the laboratories soon become the possession of the tillers of the soil and the breeders of cattle; and thus the agricultural interests of the entire country receive a powerful impetus.

To the school which in such a glorious way and so fruitfully serves the interests of science and practical agriculture we send our heartiest congratulation upon this thirteenth day of May of the year MDCCCCVII (1907) destined for the celebration of the sacred semi-centennial festivals; we proudly pray (offer vows) for the welfare and happiness of the institution and testify our friendship and our best wishes.

The Rector and Senate
of the Friedrich Halle-Wittenberg University
CAROLUS ROBERT

UNIVERSITY OF MAINE

PRESENTED BY DELEGATE PRESIDENT GEO. E. FELLOWS

The trustees, president, and faculty of the University of Maine present heartiest congratulations to Michigan Agricultural College upon fifty years of magnificent work.

UNIVERSITY OF MICHIGAN

PRESENTED BY DELEGATE PROFESSOR JACOB REIGHARD

The University of Michigan begs to extend her congratulations to the Michigan Agricultural College on the completion of fifty years of valuable service, and hopes that the two institutions may ever continue to co-operate in ministering to the prosperity of the state which has so generously nourished them both.

JAMES B. ANGELL, *President*

[SEAL]

ANN ARBOR
May 25, 1907

UNIVERSITY OF NEBRASKA

PRESENTED BY DELEGATE DEAN CHARLES EDWIN BESSEY

The regents, chancellor, faculty, and students of the University of Nebraska send greetings from the Great Plains, and congratulate the people of Michigan upon the great prosperity of their State Agricultural College on this its fiftieth anniversary.

MAY 31, 1907

UNIVERSITY OF ROCHESTER

The University of Rochester, through its delegate, Professor Francis W. Kelsey, presents felicitations, most cordial congratulations, and heartiest good wishes.

UNIVERSITY OF VERMONT

PRESENTED BY DELEGATE PRESIDENT MATTHEW HENRY BUCKHAM

The University of Vermont extends hearty congratulations to the Michigan Agricultural College on the occasion of the celebration of the Fiftieth Anniversary of its founding, and joins with its alumni and friends in wishing for it a future of great prosperity and growth.

UNIVERSITY OF WISCONSIN

PRESENTED BY DELEGATE DEAN W. A. HENRY

To the President, the Governing Board, and the Faculty of the Michigan State Agricultural College:

The University of Wisconsin extends congratulations to its sister institution on the completion of a half-century of service to the state, and to the cause of agricultural education. Not only in time of establishment, but in molding the agricultural thought of the nation, the Michigan State Agricultural College has been the pioneer. May the high ideals which have dominated the College in the past lead on to still greater achievement in the future.

CHARLES R. VAN HISE, *President*

[SEAL]
MAY 28, 1907

To the President,
the Governing Board, and the Faculty
of the

Michigan State Agricultural College:

the

University of Wisconsin

extends congratulations to its sister institution on the completion of a half century of service to the State, and to the cause of agricultural education. Not only in time of establishment, but in moulding the agricultural thought of the nation, the Michigan State Agricultural College has been the pioneer. May the high ideals which have dominated the College in the past lead onto still greater achievement in the future.

May twenty-eighth, 1907

Charles R. Van Hise
President

PHOTOGRAPHIC FACSIMILE (REDUCED) OF THE GREETINGS FROM THE UNIVERSITY OF WISCONSIN

CONGRATULATORY MESSAGES

RECEIVED BY THE COMMITTEE

FROM OTHER INSTITUTIONS AND LEARNED SOCIETIES

ABERDEEN UNIVERSITY

DEAR SIR: The Senatus Academicus of this university desires to return its cordial thanks to the President and Board of Control of Michigan Agricultural College for the courteous invitation to be represented at the celebration of the fiftieth anniversary of the institution. Unfortunately it has not been found possible to name a delegate to be present on the occasion, as the professors are now fully occupied with the Summer Session work.

The Senatus sends its hearty congratulations to your president and board on the auspicious anniversary which is about to be celebrated, together with its cordial good wishes for the future prosperity of the college.

I am, dear sir, yours faithfully,

DONALDSON ROSE THOM, *Secretary*

ABERDEEN
May 1, 1907

ALABAMA POLYTECHNIC INSTITUTE

My dear Sir: I regret very sincerely to say that our Commencement coincides exactly with your Semi-Centennial Celebration, and that it will, therefore, be impossible to have a delegate from our institution in attendance. Your institution, I believe, is the oldest agricultural college on the land grant in the United States. Our institution is the oldest separate land-grant college in the South, having been established in 1872. We send you cordial greetings and we wish you long continuation of the career of prosperity and usefulness that has marked your institution.

I am very sincerely yours,

Chas. C. Thach, *President*

Auburn, Ala.
May 15, 1907

AMERICAN SOCIETY OF CIVIL ENGINEERS

To the President and Board of Control, Michigan Agricultural College:

GENTLEMEN: This society is in receipt of your courteous request that it be represented at the celebration of the Fiftieth Anniversary of your institution, May 28 to 31, 1907.

I am instructed by the Board of Direction of this society to thank you for this invitation, which the society would be glad to avail itself of, it if were not so difficult to find a representative who would be able to be present on the occasion.

I am directed by the board to express the congratulations of this society on the Semi-Centennial Anniversary of your institution, and a cordial hope for its continued success.

Yours respectfully,

CHAS. WARREN HUNT, *Secretary*

NEW YORK CITY
March 6, 1907

CALCUTTA UNIVERSITY

To the President and Board of Control, Michigan Agricultural College:

SIRS: I am directed to acknowledge with thanks the receipt of your invitation requesting that the Calcutta University may be represented at the celebration of the Fiftieth Anniversary of the Michigan Agricultural College from May 28 to 31, 1907, and to state in reply that the Hon'ble the Vice-Chancellor and Syndicate regret that they are not in a position to avail themselves of the invitation.

I have the honor to be, Sirs,

Your most obedient servant,

G. THIBAUT, *Registrar*

SENATE HOUSE
April 27, 1907

COLUMBIA UNIVERSITY

To the President of Michigan Agricultural College:

DEAR SIR: I write to express our great regret that it seems impossible for us to make arrangements for a delegate from Columbia University at the Fiftieth Anniversary of the Michigan Agricultural College. The date falls at a time when our officers of instruction are under unusual pressure incident to the closing of the academic year. We wish to present to the College through you our heartiest congratulations upon the anniversary and our warm wishes for the continued success of the institution.

I have the honor to be, Sir,

Respectfully yours,

F. P. KEPPEL, *Secretary*

NEW YORK CITY
March 6, 1907

DELAWARE COLLEGE

To the President and Board of Control, Michigan Agricultural College:

At their last meeting our faculty directed me to express their regret at their probable inability to have our college represented at the celebration of your Fiftieth Anniversary. They further directed me to express their appreciation of your kind invitation and their thanks for the same.

Wishing you a very satisfactory occasion, I am, with regards,

Very truly yours,

FREDERIC H. ROBINSON, *Secretary*

NEWARK, DELAWARE
March 29, 1907

DEPAUW UNIVERSITY

My dear Sir: I have your invitation to the Commencement and anniversary exercises to be held at Michigan Agricultural College. On behalf of the faculty and trustees permit me to thank you for the kind courtesy of the invitation and to express our warmest good wishes and congratulations. I only wish it were possible for some of us to be there. But our own Commencement and Seventieth Anniversary will be held at the same time.

And I remain, yours ever,

Edwin H. Hughes, *President*

Greencastle, Ind.
May 20, 1907

FRANKLIN INSTITUTE

To the Trustees and Faculty of The Michigan Agricultural College:

GENTLEMEN: I have pleasure in transmitting herewith an extract from the minutes of the stated meeting of The Franklin Institute of the State of Pennsylvania, for the Promotion of the Mechanic Arts, held Wednesday, May 15, 1907.

Respectfully yours,

WM. H. WAHL, *Secretary*

[*Extract from the Franklin Institute Minutes.*]

The president thereupon presented an invitation from the Michigan Agricultural College, asking the participation of the Franklin Institute in the commemorative exercises of the Fiftieth Anniversary of that institution. The secretary was directed to prepare and transmit a suitable acknowledgment of the invitation and to express the felicitations and best wishes of the Franklin Institute.

PHILADELPHIA, PA.
May 21, 1907

HUNGARY DEPARTMENT OF AGRICULTURE

[*cablegram*]

Michigan Agricultural College, Lansing, Michigan:

Most sincere congratulations, wishing the future prosperity of the College.

DARANGI I. ROYAL
Hungarian Minister of Agriculture

BUDAPEST

JOHNS HOPKINS UNIVERSITY

DEAR SIR: I regret very much that I have not been able to find anyone who can serve as delegate of this university at your coming celebration. The time is most unfortunate for us, as we shall then be engaged in our final examinations, and the presence of every member of the staff is necessary. I intended to see whether I could not find someone elsewhere who could properly represent us, but for one reason and another I have not been successful in this, and it is now too late.

Be assured of the hearty good-will of the Johns Hopkins University toward the Michigan Agricultural College, and accept our hearty congratulations upon the completion of your first half-century. Under other conditions we should unquestionably have taken great pleasure in sending a representative to express more fully and more satisfactorily our high regard.

I am, yours very respectfully,

IRA REMSEN, *President*

BALTIMORE, MD.
May 13, 1907

KAISERLICH DEUTSCHES KONSULAT

To the President of Michigan Agricultural College:

DEAR SIR: I am directed by the Imperial Foreign Office to transmit to you and through you to the Board of Control of Michigan Agricultural College the best thanks of His Excellency the Royal Prussian Minister of Agriculture at Berlin for the kind invitation you tendered the Department of Agriculture, and his regrets that the plans heretofore laid out for the period in question did not permit the sending of a special representative of His Excellency to participate in the celebration of the Fiftieth Anniversary of your institution.

I hear with interest that you had the kindness to invite Mr. Nicola Kaumanns attached as agricultural attaché to the United States to the consulate at Chicago. Through him I will hear about the celebration of the Fiftieth Anniversary of the Michigan Agricultural College.

I have the honor to remain, dear Sir,

Yours very respectfully,

W. WEVER
Imperial German Consul-General

CHICAGO
May 22, 1907

KÖNIGLICHE UNIVERSITÄT

An den Herrn Präsidenten des Michigan-Agricultural-College:

Namens unserer Universität spreche ich den verbindlichsten Dank aus für die freundliche Einladung zu der Jubelfeier Ihrer Anstalt. Zu unserem Bedauern sind wir nicht in der Lage, einen Vertreter zu entsenden, weil die Feier in unser Semester fällt.

Hochachtungsvoll und ergebenst,

Der Rektor
v. SYBEL[1]

MARBURG
den 9. März 1907

[1] THE ROYAL UNIVERSITY

To the President of the Michigan Agricultural College:

In the name of the University, I most respectfully tender thanks for the kind invitation to the jubilee celebration of your College. To our great regret, we are not in a position to send a delegate, since the celebration comes in the midst of our semester.

Most respectfully yours
The Rector
VON SYBEL

MARBURG
March 9, 1907

LELAND STANFORD JUNIOR UNIVERSITY

DEAR SIR: It was President Jordan's hope that some one of our professors going East might be able to combine a visit to Lansing with his other engagements and serve as our delegate to the Semi-Centennial Celebration of your College, the university having no provision by which the expenses of a delegate could be paid. Dr. Jordan has himself gone to Australia. I regret that it has not been possible for us to name a delegate under the circumstances. In this event it was President Jordan's wish that I should express to the Agricultural College of Michigan the good-will of Stanford University and her hearty congratulations on the completion of a half-century of splendid work in the cause of education.

Very truly yours,

G. A. CLARK, *Secretary*

STANFORD UNIVERSITY, CAL.
May 15, 1907

K. LUDWIG-MAXIMILIANS-UNIVERSITÄT

An das Michigan Agrikultural College:

Sie waren so freundlich unsere Universität zur Feier des 50-jährigen Bestehens Ihres College einzuladen. Da die Feier mitten in das Semester fällt, so ist es uns nicht möglich einen Vertreter hinzu abzuordnen. Wir unterlassen aber nicht, auf schriftlichem Wege Ihnen unsere herzlichsten Wünsche zum Ausdrucke zu bringen.

DER AKADEMISCHE SENAT[1]

MÜNCHEN
am 12. März 1907

[1]KING LUDWIG–MAXIMILIAN'S UNIVERSITY

To the Michigan Agricultural College:

You had the kindness to invite our university to participate in the celebration of the 50th Anniversary of your College. As the celebration occurs in the midst of our semester, we find it impossible for us to send a representative. However, we do not fail to express by means of writing our heartiest wishes for the welfare of your institution.

THE ACADEMIC SENATE

MUNICH March 12, 1907

McGILL UNIVERSITY

DEAR SIR: I have been requested by the University of Cambridge to act as its representative at the Semi-Centennial Celebration of the Michigan Agricultural College and had fully intended to be present. My work, however, owing to the destruction of our buildings by fire, has been much increased, so that I fear I shall thus be unable to convey personally a message from the university which I have the honor to represent.

As the letter from the vice-chancellor will have made known to you, the University of Cambridge desires to present its congratulations and earnest wishes for the continued prosperity of your institution, which is now celebrating the conclusion of so long a period of usefulness.

The importance of the scientific study of agriculture is being constantly more widely recognized. The University of Cambridge has not been slow to take up this matter, and a Department of Agriculture has been in existence there for some years. The work of this department and the importance of the subject have been referred to by His Majesty King Edward in the following words, which I may be allowed to quote:

> I am very glad to know of the educational work in connection with the great industry of agriculture which you have undertaken. In common with most branches of industry, agriculture has in modern times come to depend for its success and extension upon the unremitting application to it of the results of scientific investigation. No greater service can be rendered to this ancient industry than to furnish it with the means of research and instruction, which are essential in order that labor may be directed in profitable channels.

With my personal congratulations, and again regretting my inability to be present, I remain,

Yours very truly,

HENRY T. BOVEY

MONTREAL
May 20, 1907

MARYLAND AGRICULTURAL COLLEGE

My dear Sir: I have your invitation to attend the Fiftieth Anniversary of the Michigan Agricultural College, to be held May 28 to 31, 1907, at Lansing, Mich.

I regret exceedingly that the celebration, taking place on the dates it does, precludes my giving myself the pleasure of attending either in person or by representative, as at this season we are in the midst of our final examinations, and this year, in addition to the final examination work, we will encamp with our Cadet Battalion at Jamestown about or near this time, and many of our staff will be with us for this encampment.

I regret exceedingly these conditions, as it would be a great gratification to me to meet with you, and rejoice with you in the successes you have achieved in the past and the brilliant promises for your institution for the future.

With much respect and esteem,

Very truly yours,

R. W. Silvester, *President*

College Park, Md.
February 23, 1907

MICHIGAN PIONEER AND HISTORICAL SOCIETY

DEAR SIR: We take pleasure in offering you our heartiest congratulations on the interesting program outlined for your Semi-Centennial, and on the wisdom shown in planning for such an important and historical occasion. The M. A. C. has proven a kindergarten for the colleges of the United States, and if her pupils come home with the titles and honor the Alma Mater has enabled them to win, it should make you all very proud and happy.

Sincerely yours,

HENRY R. PATTENGILL, *Secretary*

LANSING
May 14, 1907

PRINCETON UNIVERSITY

My dear Sir: I extremely regret to say that May is a month when my colleagues and I are all necessarily so absorbed in duties connected with the closing of the academic year that it will not be possible for our faculty to be represented at your Semi-Centennial Celebration. I am sure that I am speaking the feelings of my colleagues in extending Princeton's warmest congratulations to Michigan Agricultural College, as well as her best wishes for its continued prosperity and advance.

Very sincerely yours,

Woodrow Wilson, *President*

Princeton, N. J.
May 13, 1907

RHODESIA DEPARTMENT OF AGRICULTURE

SIR: I have the honor to acknowledge receipt of your invitation to be present at the celebration of the Fiftieth Anniversary of the institution of your College, for which I beg you to accept my best thanks.

It would have indeed been a great pleasure to us to have been represented at this celebration, but I regret that circumstances do not permit us to send a representative.

I have the honor to be, Sir,

Your obedient Servant,

WEFE O. HONEY
Secretary for Agriculture

SALISBURY
April 26, 1907

ROYAL SOCIETY

DEAR SIR: I am desired by the president and Council of the Royal Society to express their best thanks for the invitation with which they have been honoured by the president and Board of Control of Michigan Agricultural College to be represented at the Fiftieth Anniversary of the institution. They regret to be unable to accept the invitation, but they send their good wishes for the complete success of the celebration and for the continued prosperity of the College.

I beg leave to remain, dear Sir, yours faithfully,

FRANCIS DARWIN, *Foreign Secretary*

BURLINGTON HOUSE, LONDON W.
March 18, 1907

TRANSVAAL DEPARTMENT OF AGRICULTURE

The President and Board of Control, Michigan Agricultural College:

GENTLEMEN: On behalf of this department, I beg to offer to you our most sincere thanks for the honour you have done the department in inviting it to unite with you in the celebration of the Fiftieth Anniversary of the College.

Unfortunately, it is a far cry from the Transvaal to Michigan, and owing to the distance, and to the fact that the leading members of our staff are so fully engaged at the present time, it is impossible for us to accept the invitation, much as we should like to do so.

Will you therefore kindly accept our apologies for non-attendance?

Your College is famed throughout the world, both for its pioneer work in the cause of agricultural education and research, and for the perfection to which it has attained. It has been a source of inspiration and guidance to similar institutions in many countries, and the influence which it has exercised upon agriculture is widespread and profound.

Most heartily do we congratulate you upon the occasion which you are celebrating, and may the future of your College be as useful and distinguished as its past.

I have the honour to be, Gentlemen,

Your obedient Servant,

M. WURIT
Director of Agriculture

PRETORIA
April 6, 1907

UNIVERSITEIT VAN AMSTERDAM

To the President and Board of Control of Michigan Agricultural College, Lansing, Michigan:

GENTLEMEN: On behalf of the Senate of the University of Amsterdam I beg to tender you our best thanks for your kind invitation extended to our university to be represented at the celebration of the Fiftieth Anniversary of the institution. Much to my regret I have to inform you that not one of the members of the Senate is in a position to avail himself of your invitation, and to convey to you our fraternal greetings and our best wishes on this auspicious occasion. We sincerely hope that the past half-century may prove to be the earnest of a glorious future, and that Michigan Agricultural College may continue to be a powerful factor in the development of agriculture in the United States of America.

With the cordial greetings of the University of Amsterdam to your College, I have the honour to be, yours faithfully,

J. ROTGANS
Rector Magnificus of the University of Amsterdam

AMSTERDAM
April 27, 1907

UNIVERSITY OF ARIZONA

The president and Board of Regents of the University of Arizona regret that distance and the particular date will prevent their representation at the celebration of the Fiftieth Anniversary of Michigan Agricultural College. They beg leave to offer their most cordial felicitations upon the completion of this period of honorable and effective service.

TUCSON, ARIZONA
March 9, 1907

UNIVERSITY OF BOMBAY

To the President and Board of Control, Michigan Agricultural College:

GENTLEMEN: I am directed by the Syndicate to convey their thanks to you for your invitation to this university to be represented at the celebration of the Fiftieth Anniversary of Michigan Agricultural College and to express regret that it is impossible to send a representative.

I have the honour to be, Gentlemen,

Your most obedient Servant,

FARDUNJI M. DASTUR
University Registrar

BOMBAY
April 25, 1907

UNIVERSITÉ LIBRE DE BRUXELLES

A Monsieur le Président et à Messieurs les Membres de la commission administrative du Michigan Agricultural College:

MESSIEURS: J'ai l'honneur de vous accuser réception de l'invitation que vous avez bien voulu nous adresser de nous faire représenter aux fêtes de la célébration du cinquantième anniversaire de votre collège. Nous vous en sommes très reconnaissants, mais la date de cette célébration tombant dans la période de nos cours, il est impossible que l'un de nos professeurs s'absente à cette époque. Nous devons nous borner à former des vœux pour la durée et la prospérité de votre institution.

Veuillez agréer, Messieurs, l'assurance de nos sentiments les plus distingués.

Le secrétaire de l'université

A. LAVACHERY[1]

BRUXELLES
le 2 Mars 1907

[1]UNIVERSITY OF BRUSSELS

To the President and the Members of the Administration Committee of the Michigan Agricultural College:

GENTLEMEN: I have the honor of acknowledging the receipt of the invitation to have our institution represented at the Semi-Centennial Celebration of your College. We appreciate this honor very highly, but since the date of this celebration comes while our school is still in session it is impossible for any of our professors to leave at that time. We must content ourselves with extending our best wishes for the continued prosperity of your institution.

Be assured of our most friendly regard and esteem,

The Secretary of the University
A. LAVACHERY

BRUSSELS
March 2, 1907

UNIVERSITY OF CAMBRIDGE

SIR: I have the honor and pleasure to inform you that, in response to your request that the University of Cambridge may be represented on the occasion of the Fiftieth Anniversary of the Michigan Agricultural College, Dr. Henry Taylor Bovey, LL.D., D.C.L., M.Inst.C.E., F.R.S., Honorary Fellow of Queen's College, Cambridge, Dean of the Faculty of Science of the McGill University, has been appointed by the University of Cambridge as its representative and has consented to act.

I have requested Dr. Bovey to convey the hearty congratulations of the university to yourself and the Board of Control on the very interesting occasion of the Jubilee of the institution and to express to you the earnest wish of the university that your College may continue in all prosperity to perform the excellent work for which it is justly famed.

I am, Sir, yours faithfully,

E. S. ROBERTS, *Vice-Chancellor*

GONVILLE AND CAIUS COLLEGE, CAMBRIDGE, ENGLAND
April 15, 1907

THE UNIVERSITY OF CHICAGO

DEAR SIR: I beg to extend on behalf of the University of Chicago cordial congratulations to the Michigan Agricultural College on the occasion of the Fiftieth Anniversary of the institution. The work of our agricultural colleges is among the most important undertaken by the educational agencies of this country. While our own interests lie along other lines, at the same time we are deeply concerned in all that affects the educational welfare of our people.

Trusting that the College will continue to prosper and to expand its beneficent work, I am,

Very truly yours,

HARRY PRATT JUDSON

May 25, 1907

UNIVERSITY OF CHRISTIANIA

[*cablegram*]

Agricultural College, Lansing, Mich.:

Greeting and Congratulations.

UNIVERSITY OF CHRISTIANIA

KRISTIANIA
May 28, 1907

UNIVERSITY OF CINCINNATI

The president and the faculties of the University of Cincinnati regret very much to find that it will not be possible to send a representative to the Semi-Centennial Celebration of the Michigan Agricultural College, as the commencement of the university occurs at the same time. They wish again to send sincere felicitations and to express hearty good wishes for the future welfare of the College.

May 24, 1907

UNIVERSITY OF COLORADO

DEAR SIR: The University of Colorado acknowledges the formal invitation to be present at the Semi-Centennial Celebration of the Michigan Agricultural College. We regret that the distance and the demands of approaching Commencement week will prevent our sending a delegate on that occasion. The regents and the faculties extend cordial greeting and congratulations on the growth and importance of the Michigan Agricultural College.

Very truly yours,

JAMES H. BAKER, *President*

BOULDER, COLO.
May 15, 1907

UNIVERSITY OF GLASGOW

To the President of Michigan Agricultural College:

SIR: The University of Glasgow was gratified at receiving an invitation to send a representative to the celebration in the end of the present month of the Fiftieth Anniversary of the Michigan Agricultural College. The date falls in the middle of our summer session, and hence our professor of botany, who is of course the most interested among us in your work, was unable to cross the Atlantic. The university has the power of granting a degree in agriculture through the co-operation of the West of Scotland Agriculture College, and had the professor of agriculture in that institution been in a position to undertake the duty the university would gladly have sent him as a representative. The Senate must therefore content themselves with sending a cordial message of congratulation on the attainment of your Jubilee and an expression of their warmest wishes for your continued prosperity.

I am, Sir, your obedient Servant,

WILLIAM STEWART
Clerk of Senate

GLASGOW
May 8, 1907

THE UNIVERSITY OF KANSAS

President J. L. Snyder, Michigan Agricultural College:

MY DEAR PRESIDENT SNYDER: I regret to say that it is not likely that the University of Kansas will be able to send a representative to the celebration of the Fiftieth Anniversary of Michigan Agricultural College. I wish, therefore, on behalf of the regents and faculties of this university to express to you our hearty congratulations upon the event and our hope for a long continuance of your distinguished work.

Very truly yours,

FRANK STRONG
Chancellor and President of the Board of Regents

LAWRENCE, KAN.
March 26, 1907

UNIVERSITÄT LEIPZIG

An the Committee on Semi-Centennial Celebration of the Michigan Agricultural College:

Für die an die Universität Leipzig ergangene freundliche Einladung zur Teilnahme an der 50-jährigen Stiftungsfeier des Michigan Agricultural College spreche ich dem geehrten Committee on Semi-Centennial Celebration verbindlichsten Dank aus.

Bei der Kürze des Sommer-Semesters wird es aber für keinen der Professoren hier zu ermöglichen sein, als Delegierter zu der Festfeier persönlich zu erscheinen. Es verfehlt jedoch der unterzeichnete Rector nicht, Namens der Universität Leipzig dem geehrten Michigan Agricultural College zur Jubelfeier die herzlichsten Glückwünsche hierdurch auszusprechen. Möge es bei dem grossen Rufe, dessen es sich nicht nur in praktischen, sondern auch in landwirtschaftlich wissenschaftlichen Kreisen zu erfreuen hat, in aller Zukunft blühen und gedeihen.

Der Rector der Universität Leipzig
DR. CURSCHMANN[1]

LEIPZIG
am 12. März 1907

[1]THE UNIVERSITY OF LEIPZIG

To the Committee on Semi-Centennial Celebration of the Michigan Agricultural College:

For the invitation to the University of Leipzig to participate in the celebration of the Fiftieth Anniversary of the Michigan Agricultural College I wish to express to the honored Committee on Semi-Centennial Celebration our most hearty thanks.

On account of the short duration of the summer semester it will be impossible for any of the professors to be present in person as delegates on this occasion. However, the undersigned Rector takes pleasure in extending herewith in the name of the University of Leipzig the most cordial congratulations to the honored Michigan Agricultural College on its Jubilee. May it continue to thrive and flourish, forever maintaining the glorious reputation it has enjoyed and is justly enjoying among practical, as well as scientific agriculturists.

The Rector of the University of Leipzig
DR. CURSCHMANN

LEIPZIG, March 12, 1907

UNIVERSITY OF MELBOURNE

The President, Michigan Agricultural College:

SIR: I have the honour on behalf of the University of Melbourne to acknowledge with thanks the receipt of the invitation to be represented at the celebration of the Fiftieth Anniversary of the Michigan Agricultural College.

I am directed by the Council to convey to you its congratulations on the occasion of the Jubilee of the College and to express its regret that it is unable to appoint a representative to be present at the celebration.

I have the honour to be, Sir,

Your obedient Servant,

W. E. CORNWALL, *Registrar*

May 3, 1907

UNIVERSITY OF NORTH DAKOTA

President of the Board of Control, Michigan Agricultural College:

DEAR SIR: I write on behalf of the State University of North Dakota to express our regret that it will be impracticable for the university to be represented by a delegate on the occasion of the Fiftieth Anniversary of the founding of the Michigan State Agricultural College. Previous engagements make it impossible for me to be present on that occasion. I am instructed by the faculty, however, to send most cordial greetings and congratulations upon the very honorable record of the Michigan State Agricultural College during the past half-century. Its contribution to the wealth and well-being of the state of Michigan as well as to the great cause of agricultural improvement throughout the country is incalculable. It is our hope that the brilliant achievements of the last half-century are but the harbinger of a still more brilliant career to be achieved in the next half-century.

With renewed greetings and congratulations, I have the honor to remain,

Very sincerely yours,

WEBSTER MERRIFIELD, *President*

UNIVERSITY, N. D.
April 6, 1907

UNIVERSITÉ DE PARIS

Monsieur le Président:

J'ai communiqué au Conseil de l'Université de Paris l'invitation que vous avez bien voulu adresser à l'Université de se faire représenter aux fêtes du 50ème anniversaire de la fondation du Collège d'Agriculture de Michigan, qui auront lieu les 28, 29 et 30 mai prochain.

J'ai le regret de vous informer qu'à cette époque de l'année où s'achèvent les cours, et où s'ouvre la période des examens, il ne sera pas possible à l'Université de répondre à votre vœu.

Mais en son nom comme au mien, j'ai l'honneur de vous adresser, avec nos remerciements pour votre invitation, l'expression de nos vœux les plus empressés pour la prospérité du Collège d'Agriculture de Michigan.

Veuillez agréer, Monsieur le Président, l'assurance de ma haute considération.

LE VICE-RECTEUR

Président du Conseil de l'Université de Paris[1]

PARIS

le 17 avril 1907

[1]THE UNIVERSITY OF PARIS

Mr. President:

I have communicated to the Council of the University of Paris your kind invitation addressed to the university to participate in the celebration of the Fiftieth Anniversary of the Michigan College of Agriculture taking place on the 28th, 29th, and 30th days of next May.

I regret to inform you that at this time of the year, when the regular work of the university has just been completed and the examinations are about to commence, it would be impossible for us to respond to your desire.

But in the name of the university, as well as my own, I have the honor to render you our thanks for your invitation and to express our most earnest wishes for the welfare of the Michigan College of Agriculture.

Mr. President, accept the assurance of my highest regards.

VICE-RECTOR

President of the council of the University of Paris

PARIS, April 17, 1907

UNIVERSITY OF TOKIO

[*cablegram*]

Agricultural College, Lansing, Mich.:
Cordial Congratulations.

UNIVERSITY TOKIO

TOKIO
May 28, 1907

UNIVERSITY OF UTRECHT

To the President and Board of Control of Michigan Agricultural College:

The Senate of the University of Utrecht have the honor to acknowledge with thanks the invitation of the president and Board of Control of Michigan Agricultural College, to be represented at the celebration of the Fiftieth Anniversary of the institution on May 28 to 31, 1907. They regret not having an opportunity to appoint delegates who might orally give expression to their admiration for your illustrious College, and request that the cordial congratulations of the University of Utrecht be graciously accepted from this address.

The Secretary of the Senate
W. H. JULIUS

UTRECHT
March 15, 1907

UNIVERSITÄT WIEN

An das Michigan Agricultural College:

Das Michigan Agricultural College hat der k. k. Universität Wien eine Einladung zu der in der Zeit vom 28. bis 31. Mai 1907 stattfindenden 50-Jahrfeier übermittelt.

Ich beehre mich, namens der Wiener Universität hierfür den wärmsten Dank auszusprechen und meinem Bedauern darüber Ausdruck zu geben, dass die Entsendung eines Vertreters gerade um diese Zeit nicht möglich ist, weil der Unterrichtsbetrieb an der Universität und die dort stattfindenden Prüfungen eine längere Entfernung von Mitgliedern des Lehrkörpers untunlich erscheinen lassen.

Es sei mir gestattet, dem löblichen Michigan Agricultural College auf diesem Wege die Glückwünsche der k. k. Universität Wien zu übermitteln.

DER REKTOR DER K. K. UNIVERSITÄT[1]

WIEN
am 24. April 1907

[1]UNIVERSITY OF VIENNA

To the Michigan Agricultural College:

The Michigan Agricultural College extended its invitation to the K. K. University of Vienna to participate in the celebration of the Fiftieth Anniversary of the institution, taking place between the 28th and 31st days of May, 1907.

I have the honor to express in the name of the University of Vienna our heartiest thanks for your kindness and, at the same time, regret to say that we find it impossible for us to send a representative at that time, for the regular work of the University as well as the examinations taking place there at the time mentioned, do not permit the prolonged absence of any member of the faculty.

Permit me to extend to the worthy Michigan Agricultural College the congratulations of the K. K. University of Vienna.

RECTOR OF THE K. K. UNIVERSITY

VIENNA, April 24, 1907

WESTERN UNIVERSITY OF PENNSYLVANIA

The Chancellor and Faculty of the Western University of Pennsylvania gratefully acknowledge receipt of the invitation of the President and the Board of Control of Michigan Agricultural College to be represented at the celebration of the fiftieth anniversary of the institution, May 28–31, 1907, and very greatly regret that the near approach of Commencement will prevent representation on that occasion. They wish, however, to congratulate the Michigan Agricultural College upon attaining to the mature age of fifty years, and to wish the College a continuation of its great prosperity and splendid usefulness during the next half-century. This expression is the more earnest because Pittsburgh has given to the College its present able executive and more recently the head of its English Department.

PITTSBURGH, PA.
March 12, 1907

In addition to the greetings printed in full, felicitations were received from the following institutions:

Adelphi College, Brooklyn, N. Y.
Allegheny College, Meadville, Pa.
Antioch College, Yellow Springs, O.
Bates College, Lewiston, Maine
Beaver College and Musical Institute, Beaver, Pa.
Beloit College, Beloit, Wis.
Boston University, Boston, Mass.
Bryn Mawr College, Bryn Mawr, Pa.
Carleton College, Northfield, Minn.
Carthage College, Carthage, Ill.
Central Wesleyan College, Warrenton, Mo.
Cheshire Swine Breeder's Association, Freeville, N. Y.
Colgate University, Hamilton, N. Y.
Denison University, Granville, Ohio
Department of Agriculture, Victoria, Melbourne
Detroit College, Detroit, Mich.
Eureka College, Eureka, Ill.
Georgia School of Technology, Atlanta, Ga.
Hiram College, Hiram, Ohio
Lake Forest College, Lake Forest, Ill.
Macalester College, St. Paul, Minn.
Marietta College, Marietta, Ohio
Notre Dame University, Notre Dame, Ind.
Occidental College, Los Angeles, California
Ohio University, Athens, Ohio
Pennsylvania College for Women, Pittsburgh, Pa.
Radcliffe College, Cambridge, Mass.
Roanoke College, Salem, Va.
Rose Polytechnic Institute, Terre Haute, Ind.
Rothamsted Experimental Station, Harpenden, England
Smith College, Northampton, Mass.
Syracuse University, Syracuse, N. Y.
Thomas S. Clarkson Memorial School of Technology, Potsdam, N. Y.
Trinity College, Dublin, Ireland
University of Illinois, Urbana, Ill.
University of Montana, Missoula, Montana

University of New Mexico, Albuquerque, N. M.
University of North Carolina, Chapel Hill, N. C.
University of Oregon, Eugene, Oregon
University of Sydney, Australia
Vassar College, Poughkeepsie, N. Y.
Wellesley College, Wellesley, Mass.
Wesleyan University, Middletown, Conn.
Wheaton College, Wheaton, Ill.
The Woman's College, Baltimore, Md.
Worcester Polytechnic Institute, Worcester, Mass.
Yale University, New Haven, Conn.

CONGRATULATORY MESSAGES

RECEIVED BY THE COMMITTEE

FROM INDIVIDUALS

FROM SARAH M. ABBOT

Widow of Theophilus C. Abbot, Professor in this College, 1858–92, and President, 1862–84

President Snyder:

DEAR SIR: It is with exceeding regret that I must decline the invitation to be present at the Fiftieth Anniversary of Michigan Agricultural College. Nothing could give me greater pleasure than to meet once more the old students and other friends who will be there, but the infirmities of old age do not permit me to take the long journey.

With best wishes for the continued prosperity of the College in which I shall ever be interested,

Very sincerely yours,

SARAH M. ABBOT

SAN GABRIEL
May 17, 1907

FROM ROBERT GIBBONS

For many years Editor of the *Michigan Farmer*

President J. L. Snyder, Michigan Agricultural College, Mich.:

DEAR MR. PRESIDENT: Pardon my neglect to acknowledge the receipt of your very artistic invitation to attend the Semi-Centennial of Michigan Agricultural College. I can assure you the compliment is highly appreciated, and I only waited to see whether or not I could possibly be present before replying. It is with great regret I find I will not be able to attend. Thursday is Memorial Day, and I could not put off meeting with the old comrades yet able to answer roll-call, but maybe for the last time. They are dropping fast, now, and the few left in Detroit Post 384 regard the loss of a familiar face as a calamity.

But I am getting too reminiscent—a sign probably that Dr. Osler should be on my track and cut me off as a cumberer of the earth.

But, Mr. President, let me say that the Michigan Agricultural College is the Plymouth Rock of American agriculture, and as inspiring in its history as that famous rock has been in the history of free government. Its pioneers had as arduous a task before them as the Pilgrim Fathers, and did their duty as they saw it, as faithfully as the Puritans. Long after we have passed into oblivion the agricultural colleges of the United States will be the beacon lights along the stream of progress which will warn voyagers from the rocks of ignorance and prejudice, and guide them into the harbors of success and advancement. Every patriot who prizes the well-being of his country should contribute by voice and work for their fuller development to meet the enlarged and onerous duties they will be compelled to assume.

This is not written in eulogy, but as a statement of facts that will force themselves upon the minds of all who have studied their history. I have had opportunities during the past forty years to know the men who have managed M. A. C.'s affairs and taught its students, and have seen the results of their teach-

ings exemplified on the farms of the state. It is an inspiring record, and one that will be more greatly honored a century hence than the present generation can realize.

Let us all hope, Mr. President, that future generations will be as faithfully served by the faculty and managers of agricultural colleges all over the land as the present ones, and there will be no fear that the agriculturalist will not develop with his opportunities, and become more of a factor in the industrial progress of the Union than he is now.

Sincerely believing that I have not overstated, or even approached the magnitude of the services rendered by the farmers' colleges in the Union, I need not repeat that I regard them as worthy of all praise as the best examples of the true dignity of labor that is honestly performed and as exemplifying its great value in building up the character of American Citizens.

All honor, therefore, to the M. A. C., the Plymouth Rock of American agriculture, whose teachings developed pioneers able to make plain the great truths of Nature and their relation to the highest development of modern agriculture. To yourself, Mr. President, and your able assistants and advisers, I feel it only justice that I, who know what has been accomplished, should bear testimony to their unselfish and patriotic services in advancing and developing the agriculture of the state.

This is not for the public, but to make clear to yourself and every member of the faculty how much I appreciate their services.[1]

Sincerely yours,

ROBT. GIBBONS

DETROIT, MICH.
May 28, 1907

[1] Permission was later given for the publication of this letter.—EDITOR.

FROM DOCTOR EDWARD EVERETT HALE

My dear Sir: I am one of the few people who remember with interest the establishment of the Agricultural College. I have followed its honorable history with pride and pleasure. I am honored and gratified by your invitation. But I am sorry to say that I have already made appointments for that week which compel me to decline attempting the service which you propose.

I told Senator Burrows that I hoped I could arrange to come. But this proves to be impossible.

Truly yours,

Edw. E. Hale

1748 N Street, N. W., Washington, D. C.
February 12, 1907

A GREETING TO THE MICHIGAN AGRICULTURAL COLLEGE

FROM DOCTOR E. W. HILGARD

Professor of Agriculture in the University of California and Director of the Experiment Station

Greatly regretting my inability to be personally present at the Semi-Centennial Celebration of the founding of the oldest agricultural college in the United States, I have requested President Wheeler to convey to the Michigan College my greetings and congratulations upon this auspicious occasion, which representatives of all colleges in the country have come together to celebrate. I hail it as one of the manifestations of growing interest in the commemoration of anniversaries of victories unconnected with the marshaling of armies or with civil strife.

I know I am but one among the hundreds engaged in promoting the progress of the fundamental industry, which is now emerging from the eclipse of ages into recognition as a profession worthy of the highest efforts of the best intellects. I am, however, led to ask a hearing at this time, as one of the relatively few survivors of the first general meeting of agricultural college men, held in Chicago in August, 1869, when the Michigan College was already twelve years old. The call to that early convention was for the discussion of the proper organization of, and subjects and methods of instruction in, the new institutions, regarding which there was a wide divergence of opinion. If I remember rightly, several of the charter members of the Michigan College, whose names are on the program of this meeting, were also present; and among the eastern delegates was Daniel C. Gilman, then librarian of Yale College. It was remarked by those attending that the Michigan College alone had placed on the program several strictly technical papers, the first of these being one by Professor Manly Miles, on "Pig Feeding." On my arising to a point of order, claiming that the object of the meeting was to discuss the education of men and not animals,

the objection was not sustained by the chairman, in view of the prominence of the speaker, and the seniority of the Michigan College. It clearly developed during the later discussions that Michigan College considered that she had already solved the problem, and that what has since borne the designation of the "Michigan Plan," viz., a large proportion of student labor, "to keep up the habit and not wean the pupils from the farm," was the only admissible method of agricultural education. The predominance of opinion at the adjournment of the convention seemed to favor that plan, although many vigorous protests against the use of so much of the students' time for mere mechanical exercise were voiced.

It is hardly necessary to dwell elaborately, before this audience, upon the change of views and practice which experience has brought about in the Michigan College itself, and upon the gradual evolution of the "Wisconsin Plan," according to which it is distinctly recognized that the colleges organized under the Morrill Act cannot educate the bulk of the farmers' sons to be farmers, any more than the universities can directly educate the bulk of the rest of the population to their several pursuits. It is now recognized that in agricultural education as in every other, there must be a gradation of schools and of instruction, from the primary through graded grammar and high schools; so that it shall be the special function of the colleges to train, in the main, agricultural experts and teachers, the lack of whom at this time offers the most serious obstacle to the effective organization of instruction in agriculture in the lower schools, where alone the bulk of the population can be trained in anything. It is the attempt, made at first, to perform the physically impossible task of satisfactorily combining elementary and collegiate training within the colleges themselves, that has long made of them a bone of contention. For they were popularly charged with "educating the boys away from the farm," while in reality they were merely fulfilling their prescribed duty of giving instruction

in "the sciences bearing on agriculture and the mechanic arts."

I have held and defended these views for nearly forty years, mostly against heavy popular odds, but I do not fail to recognize and fully appreciate the inestimable services which the Michigan College has rendered to the cause of agricultural education. First in the field, and with few available precedents to act upon, amid intensely practical surroundings, she took what appeared to be the most obvious and direct course toward the desired end, thus giving an object-lesson of the greatest importance to all the younger states and colleges. Therefore, in my view, the achievements of the Michigan Agricultural College during the second half-century upon which she is now entering, can hardly be more widely useful than have been those of the first, the end of which brings her well-deserved congratulations from all parts of the United States.

EUG. W. HILGARD

FROM BYRON D. HALSTED

Of the Class of 1871. Instructor, 1873–74. Professor of Botany and Horticulture, Rutgers College, 1889–

[*telegram*]

NEW BRUNSWICK, N. J., May 29, 1907

President Jonathan L. Snyder:

My love to my Mother, whose paeans are sung
The queen of all others, and fifty years young.

BYRON D. HALSTED

FROM PRICE J. WILSON

TIFFIN, OHIO, May 22, 1907

President of Agricultural College, Lansing, Mich.:

MY DEAR PRESIDENT SNYDER: I certainly do most highly appreciate your kind invitation of May 18 to attend the Semi-Centennial Exercises of your great institution. My uncle, P. J. Price, Mr. H. A. Woodworth's father-in-law, my brother, and myself walked out from Lansing that day,[1] for conveyances were of primitive style and not plenty in those days. We all enjoyed the exercises. The address of the president of the College was full of hope and you are enjoying its fruition in these days. I rejoice in the success that has come to Michigan Agricultural College.

I hope the days of next week will be delightful and full of rational enjoyment. I hope to accept your invitation to be present and I do sincerely thank you for this kindness.

Very truly yours

PRICE J. WILSON

[1] May 13, 1857, on which day Michigan Agricultural College was formally dedicated.

LIST OF DELEGATES AND OTHER DISTINGUISHED GUESTS

*The star shows that a duly accredited delegate is unable to be present.

FOREIGN UNIVERSITIES AND COLLEGES

University of Cambridge
Dean Henry T. Bovey, F.R.S., LL.D., D.C.L.*

University of Edinburg
Professor Robert Wallace

Friedrichs-Universität
Carl Steinbrück, Ph.D.

University of Naples
Pietro Cardiello

McGill University
Principal James W. Robertson, LL.D., C.M.G.*

University of Toronto
President G. C. Creelman, B.S.A., M.S.

University of Upsala, Sweden
Carl G. Dahl

Ontario Agricultural College
President G. C. Creelman, B.S.A., M.S.

AMERICAN UNIVERSITIES AND COLLEGES

Adrian College
Rev. John W. Gray, M.A., D.D.

Albion College
President Samuel Dickie, LL.D.

Alma College
President August F. Bruske, D.D.

Amherst College
Superintendent S. O. Hartwell

Baldwin University
President George Blake Rogers, A.M., B.D., Ph.D., D.D.

Blackburn College
Victor M. Gore, A.B.

Bucknell University
President John Howard Harris, Ph.D., LL.D.

Central State Normal School
Professor William Bellis, B.S., B.Pd.

Clark University
Ellsworth G. Lancaster, Ph.D., LL.D.

Clemson Agricultural College
Professor J. N. Harper
Professor W. M. Riggs, M.E.

Colorado State Agricultural College
Professor C. P. Gillette, M.S.

Colorado School of Mines
President Victor Clifton Anderson, A.B., Sc.D.

Connecticut Agricultural College
President Rufus Whittaker Stimson, A.M., B.D.

Cornell University
Dean Liberty Hyde Bailey, M.S.
Professor R. C. Carpenter, LL.D.
Professor Thomas Forsyth Hunt, M.Sc., D.Sc.
Professor L. B. Judson, B.S.
Professor Raymond Allen Pearson, M.S.
Professor John Craig, M.S.
Professor M. V. Slingerland, Ph.D.

Detroit College
President R. D. Slevin, S.J.*

Earlham College
Fred R. Hathaway, M.A.

Georgia State College of Agriculture and Mechanic Arts
President Henry Clay White, Ph.D., D.C.L., LL.D.

George Washington University
Rev. Richard D. Harlan, D.D., LL.D.

Hamilton College
Rev. Willard K. Spencer, A.M., D.D.

Hampton Institute
Director E. A. Bishop, B.S.

Harvard University
Professor Theodore Lyman, Ph.D.

Hillsdale College
President Joseph William Mauck, A.M., LL.D.

Hope College
President Gerrit J. Kollen, A.M., LL.D.

Indiana University
E. A. Bryan, A.M., LL.D.

Iowa State College of Agriculture and Mechanic Arts
President A. B. Storms, A.M., D.D., LL.D.*
Dean C. F. Curtiss, M.S.A.
Professor L. H. Pammel, Ph.D.
P. G. Holden, B.Pd., M.S.

Kalamazoo College
President A. Gaylord Slocum, A.M., LL.D.

Kansas State Agricultural College
President E. R. Nichols, B.D., B.S., A.M.
Regent A. M. Story

Kentucky State College
President James Kennedy Patterson, Ph.D., LL.D.

Lake Erie College
Professor Inza McK. Allison, B.E.

Louisiana State University and Agricultural and Mechanical College
Dr. Wm. H. Dalrymple, M.R.C.V.S.

Massachusetts Agricultural College
President Kenyon L. Butterfield, B.S., A.M.
Wm. H. Bowker, B.S.
Professor George E. Stone, Ph.D.

Massachusetts Institute of Technology
Professor Geo. W. Patterson, B.S., M.A., Ph.D.

Miami University
Professor Benjamin Marshall Davis, M.S., Ph.D.

Michigan College of Mines
President F. W. McNair, B.S.

Michigan State Normal College
President L. H. Jones, A. M.

Mississippi Agricultural and Mechanical College
President John C. Hardy, A.M., LL.D.

Missouri School of Mines
Professor P. J. Wilkins, B.S.

Mount Holyoke College
Mrs. Leartus Connor, B.S.

National Farm School
Director John Hosea Washburn, A.M., Ph.D.

New Hampshire College of Agriculture and Mechanic Arts
President W. D. Gibbs, M.S.
Professor E. Dwight Sanderson, B.S., B.S.A.

North Dakota Agricultural College
Professor C. B. Waldron, B.S.

Northern State Normal School
Principal James H. B. Kaye, A.M.

Northwestern University
President Abram Winegardner Harris, Sc.D., LL.D.

Oberlin College
Dean Charles E. St. John, B.S., Ph.D.

Ohio State University
Dean Homer C. Price, M.S.A.
Professor William R. Lazenby, M.Agr.

Oklahoma Agricultural and Mechanical College
Director William L. English, B.S.
Professor W. R. Wright, B.S.

Olivet College
President Ellsworth G. Lancaster, Ph.D., LL.D.

Oregon Agricultural College
President W. J. Kerr, D.Sc.

Pennsylvania State College
Vice-President Judson P. Welch, Ph.D.
Professor H. E. Van Norman, B.S.

Pomona College
Professor Albert John Cook, D.Sc.

Purdue University
President Winthrop Ellsworth Stone, A.M., Ph.D., LL.D.
Professor W. C. Latta, M.S.
Professor J. Troop, M.S.
C. G. Woodbury, B.S.

Rhode Island College of Agriculture and Mechanic Arts
President Howard Edwards, LL.D.

Rutgers College
President W. H. S. Demarest, A.M., D.D.
Professor Edward B. Voorhees, A.M., D.Sc.
Professor J. G. Lipman, A.M., Ph.D.

South Dakota College of Agriculture and Mechanic Arts
President Robert L. Slagle, A.M., Ph.D.
Director James W. Wilson, M.S.A.

State College of Washington
President Enoch A. Bryan, A.M., LL.D.

Swarthmore College
Ralph Stone, B.A., LL.B.

Texas Agricultural and Mechanical College
Professor Charles H. Alvord, B.S.

Tuskegee Normal and Industrial Institute
Charles W. Greene

Union College
Hon. Charles DeWitt Lawton, C.E., A.M.

University of California
President Benjamin Ide Wheeler, Ph.D., LL.D.
Hon. A. W. Foster

University of Georgia
President Henry Clay White, Ph.D., D.C.L., LL.D.

University of Illinois

President Edmund Janes James, A.M., Ph.D., LL.D.*
Dean Eugene Davenport, M.S., M.Agr., LL.D.
Superintendent Fred H. Rankin
Professor H. W. Mumford, B.S.

University of Maine

President George Emory Fellows, Ph.D., L.H.D., LL.D.
Dean Wm. D. Hurd, B.S.
Professor M. J. Dorsey, B.S.

University of Michigan

President James Burrill Angell, A.M., LL.D.
Professor Jacob Reighard, Ph.B.
Professor Mortimer Elwyn Cooley, M.E., LL.D.
Professor J. B. Pollock, Sc.D.

University of Minnesota

Professor Harry Snyder, B.S.
Professor Samuel B. Green, B.S.
Professor C. P. Bull, B.Agr.

University of Missouri

Professor F. B. Mumford, B.S.
Dean H. J. Waters, B.S.A.
P. J. Wilkins, B.S.

University of Nebraska

Dean Charles E. Bessey, Ph.D., LL.D.
Director Albert Eugene Davisson, A.B.
Professor H. R. Smith, B.S.

University of Nevada

Professor Henry Thurtell, B.S.

University of Oklahoma

President David R. Boyd, A.M., Ph.D.

University of Rochester

Professor Francis W. Kelsey, A.M.

University of Tennessee

Professor Brown Ayres, Ph.D., LL.D.*
Director H. A. Morgan
Professor Charles E. Ferris, B.S.

University of Vermont
President Matthew Henry Buckham, D.D., LL.D.

University of Wisconsin
President Charles R. Van Hise, M.S., Ph.D.*
Regent W. D. Hoard
Dean William Arnon Henry, D.Sc.
Professor Harry Luman Russell, M.S., Ph.D.

University of Wyoming
President Frederick M. Tisdel, Ph.D.

Virginia Agricultural College and Experiment Station
Dean Andrew M. Soule, B.S.A.*

Washington and Lee University
President George H. Denny, M.A., Ph.D., LL.D.

Western College for Women
Professor Mary F. Leach, Ph.D.

Western State Normal School
Principal Dwight B. Waldo, Ph.B., A.M.

Wheaton College
President Charles A. Blanchard, A.M., D.D.

Williams College
Leartus Connor, M.A., M.D.

Tufts College
President Frederick W. Hamilton, A.M., D.D., LL.D.*

AGRICULTURAL EXPERIMENT STATIONS

Arizona Experiment Station
Director Robert Humphry Forbes, M.S.

Colorado Agricultural Experiment Station
Director L. G. Carpenter, M.S.

Connecticut Agricultural Experiment Station
Director Edward H. Jenkins, Ph.D.

Cuban Agricultural Experiment Station
Director J. T. Crawley
Nelson S. Mayo, B.S., M.D.C.

Delaware College Experiment Station
Director H. Hayward, M.S.Agr.

Florida Agricultural Experiment Station
Director P. H. Rolfs, M.S.

Illinois University Agricultural Experiment Station
Director Eugene Davenport, M.Agr., LL.D.

Indiana Agricultural Experiment Station
Director Arthur Goss, M.S.

Iowa Agricultural Experiment Station
Director C. F. Curtiss, B.S.A., M.S.A.

Kansas Agricultural Experiment Station
Director Charles William Burkett, M.Sc.

Kentucky Agricultural Experiment Station
Director M. A. Scovell, Ph.D.
Professor H. Garman

Maine Agricultural Experiment Station
Director Chas. D. Woods, Sc.D.

Maryland Agricultural Experiment Station
Professor C. P. Close, M.S.

Massachusetts Agricultural Experiment Station
Director Wm. P. Brooks, Ph.D.
Dr. George Edward Stone, Ph.D.

Mississippi Agricultural Experiment Station
Director W. L. Hutchinson, M.S.

Missouri Agricultural Experiment Station
Director H. J. Waters, B.S.

Nebraska Agricultural Experiment Station
Director E. A. Burnett, B.S.
Superintendent W. P. Snyder, M.S.

New Jersey Agricultural Experiment Station
Jacob G. Lipman Ph.D.

New York Agricultural Experiment Station, Cornell
Director Liberty Hyde Bailey, M.S.
Professor R. A. Pearson, M.S.

New York Agricultural Experiment Station, Geneva
Director Whitman H. Jordan, M.S., D.Sc., LL.D.
F. C. Stewart, M.Sc.
P. J. Parrott, A.M.
F. H. Hall, B.S.

North Dakota Agricultural Experiment Station
Henry Luke Bolley, M.S.

Ohio Agricultural Experiment Station
Director Charles Embree Thorne, M.A.
Hon. T. C. Laylin, B.S.
O. D. Selby, B.S.
John Cartwright, B.S.
W. J. Green, B.S.

Oklahoma Experiment Station
Director W. L. English, B.S.

Pennsylvania Experiment Station
Director Henry Prentiss Armsby, Ph.D., LL.D.

Rhode Island Agricultural Experiment Station
Director H. J. Wheeler, M.A., Ph.D.

South Carolina Experiment Station
Director Joseph Nelson Harper, M.Agr.

South Dakota Experiment Station
Director James Wilbur Wilson, M.S.

Storrs Agricultural Experiment Station
Director Louis Adelbert Clinton, M.S.

Texas Agricultural Experiment Station
Acting Director J. W. Carson, B.S.

Utah Agricultural Experiment Station
Director Elmer Darwin Ball, M.S.
P. A. Yoder, Ph.D.

Vermont Experiment Station
Director Joseph L. Hills, D.Sc.

West Virgina Agricultural Experiment Station
Director James H. Stewart, A.M.

Wisconsin Agricultural Experiment Station
Director William Arnon Henry, D.Sc.
Professor Harry Luman Russell, M.S., Ph.D.

Wyoming Experiment Station
Director B. C. Buffum, M.S.

AMERICAN SCIENTIFIC SOCIETIES

American Academy of Arts and Sciences
President James Burrill Angell, A.M., LL.D.

American Antiquarian Society
President James Burrill Angell, A.M., LL.D.

American Chemical Society
Professor Frank S. Kedzie, M.S.

American Institute of Electrical Engineers
Professor Morgan Brooks, Ph.B., M.E.

American Philosophical Society
Director William Powell Wilson, D.Sc.

American Society of Mechanical Engineers
Professor Paul M. Chamberlain, M.S.
Professor M. E. Cooley, LL.D.
Mr. Alex. Dow
Mr. F. E. Kirby

Geological Society of America
Frank Leverett, B.Sc.

Michigan Academy of Science
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